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ABSTRACT

This study presents the results of research concerning Ontario population trends and considers the implications for school-age groups in selected regions and throughout Ontario. Findings indicate that fertility has been declining across Ontario in recent years, especially in urban areas and for women under 20 and over 35. Although Ontario has relatively low mortality rates for most ages, infant mortality remains relatively high. Migration patterns have produced growth principally in urban regions. These three factors--fertility, mortality and migration--determine the population in each school-age group. Factors such as rate of growth of population, ratio of dependent age groups to working age groups, and rate of participation of males and females in the labor force determine the level and kind of education needed in a particular area of the province. All these factors were used to arrive at a number of school population projections. Between 1978 and 1981, the age group 5-13 will experience a decline but will rise again until 1986. Age group 14-17 is expected to decline until 1985. Age group 18-24 will increase to a peak in 1984 when it will begin to decline. (Author/JM)

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ED158406

THE DEVELOPMENT OF IMPROVED BASES FOR FORECASTING SCHOOL AGE POPULATION THROUGHOUT ONTARIO

U.S. DEPARTMENT OF HEALTH,
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A Study of Demographic Components

BETTY MACLEOD, principal investigator
G. SABIR SHAKEEL
WILLIAM A. POSTL
RICHARD G. WOLFE

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Abstract

This report is presented in three sections. Section A, entitled "Population in Ontario's Education Regions," presents the results of research respecting trends in population throughout the counties, districts, and regional areas of Ontario, and considers the implications for school age groups of the population projections which are presented on microfilm, available separately. The projections are for single ages of population for the province, and for counties, districts, and regional areas grouped into regions which relate closely to the nine regions used by the Ontario Ministry of Education for purposes of administration. Two sets of projections were made by calendar years to 1986 to indicate high and low limits within which actual population is expected to fall. The projections were generated on the basis of assumptions derived from trends in fertility, mortality, and migration, as described in Section A. Section B outlines these assumptions in more detail and sets forth the rationale behind them; gives the notations used and summarizes the methodology employed in dealing with the fertility, mortality, and migration inputs; and, finally, presents a description and listing of the projection program. Section C reproduces the two sets of projections on microfilm.

Summary

Fertility has been declining strongly across Ontario in recent years--on the order of 20% across the province. Whereas this decline was apparent across all regions, a differential pattern was evident, with fertility generally being higher in rural parts of the province and

lower in urbanized areas. Age-specific fertility (i.e., the number of births to women of a given age, per 1,000 women of that age) has declined generally for women aged 35 and over, and for women under 20. However, rates for women aged 20 to 34 have tended to remain about the same as in earlier years, suggesting that fertility in the future will depend significantly upon the decision of such women about childbearing and desired family size.

Changing mores respecting marriage may affect family size in the future but evidence about the likely effects is lacking at the present time. Patterns of natural increase and reproduction primarily reflected changes in fertility and the relative size of the age group of women in the childbearing age, since mortality was relatively uniform in its effects upon population of specific ages across the province.

Changes in mortality are much more predictable than those in fertility and migration. Ontario is one of the demographically advanced areas of the world with relatively low death rates for most ages, but its infant mortality rate remains relatively high. This is particularly true of infant mortality in more remote parts of the province, where crude death rates also tend to be high, often because of age structure, i.e., more persons over 50 years of age in relation to total population than in other parts of the province. Age-specific mortality is generally higher for males than for females, a trend which is typical of demographically advanced countries. This gap between mortality rates for the sexes may become less in the future, but the evidence suggesting such a trend is not very conclusive.

Migration, which has been a major source of growth for most urban areas in Ontario, is the most difficult of the three major demographic components to measure and to predict. Urbanness in Ontario, largely reflecting the effects of migration, rose generally between 1961 and 1971, with the Central and Niagara Regions being the chief reception areas. Growth in the Central Region owed a great deal to the arrival of immigrants from overseas, many of whom settled in Toronto. Future migration may continue to follow similar patterns or may sharply decline, since it depends upon many factors which are difficult to predict, including industrial development, resource discoveries, transportation and communication, regional plans for area development, and national and provincial immigration policies. For this reason two assumptions have been made for migration, the first that it will follow the patterns established between 1961 and 1971, and the second that migration between areas and in and out of the province will result in no net gains or losses, so that population change will result from natural increase.

Whereas fertility, mortality, and migration tend to determine the numbers of population in school age groups, other characteristics of population condition the level and kind of education needed in any particular area of the province. The rate of growth of population, the ratio of dependent age groups to working age groups, the rate of participation of males and females in the labour force, ethnic composition, language, religion, and proportions of population with grade 9 education or less are some of the more important characteristics described in Section A as needing to be taken into account along with size of the school age population.

Sections B and C present the detailed projections and their technical characteristics. The population projections are set forth by single years of age and single year intervals for counties and education regions and for the province as a whole, using the 1971 Census record of population by sex and age as a bench mark.

The highlights of the projections presented in Section C are considered in the concluding chapter of Section A, particularly the projected trends for age groups 5 to 13, 14 to 17, 18 to 24, and total population. The projections for those age groups are illustrated by a series of charts for Ontario and the education regions and are listed in statistical tables for Ontario, the education regions, counties, districts, and regional areas. Finally, the projections are compared with projections for Ontario population which have been developed elsewhere. The shifts in school age population shown in our projections are similar to those indicated by a projection of enrolment based upon work done at Statistics Canada.

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Introduction

This report is based upon a project conducted under contract with the Ontario Ministry of Education. The data used in this report were obtained from the Registrar General of Ontario and Statistics Canada, whose cooperation is gratefully acknowledged. The project was designed to explore the ongoing changes in population within Ontario, so that better assumptions could be made about patterns in fertility, mortality, and migration, and population projections could be generated which would accommodate differences at the county, district, and regional area levels as well as overall trends across the province. Section A of this volume reports upon the project findings and relates those findings to data which appeared in an earlier study entitled Patterns and Trends in Ontario Population[1] (supported in part by the Ontario Ministry of Education in 1972). The longer run view of trends in population obtained by merging the results of the two studies has facilitated the development of assumptions about the future, and the generation of projections for counties, districts, and regional areas by single years of age, as set forth in Section C of this report.

The projection of population is a useful but hazardous occupation. It is useful because guidemarks are needed to plan for the adequate provision of future commodities and services, including the educational plant and the core of teachers and administrators needed to staff the educational system of Ontario. The projection of population is hazardous because the accuracy of the projection depends upon the validity over time of the assumptions made respecting the future.

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[1] Betty Macleod, Carol Ivison, and Nirmala Bidani (Toronto: Ontario Institute for Studies in Education, 1972).

A projection is simply an indication of what will happen if current trends continue. That is to say, a projection is not an estimate or a prediction of the future. We are not functioning in the realm of metaphysical anticipation but only in that of statistical extrapolation. If any of the assumptions prove to be incorrect--which is very probable, considering that change is an inherent part of life--the projection is likely to miss its mark to a greater or lesser degree, depending upon the relative importance of the error.

Persons engaged in the business of making population projections often attempt to minimize the likelihood of failure by developing several sets of projections--high, low, and medium projections, and, sometimes, intermediate ranges as well. This can be accomplished by introducing various combinations of assumptions respecting the future levels of fertility, mortality, and migration, resulting in as many different projections as there are combinations of input variables. We have followed this course to a limited extent, generating two sets of projections which have similar assumptions respecting fertility and mortality, but different assumptions for migration.

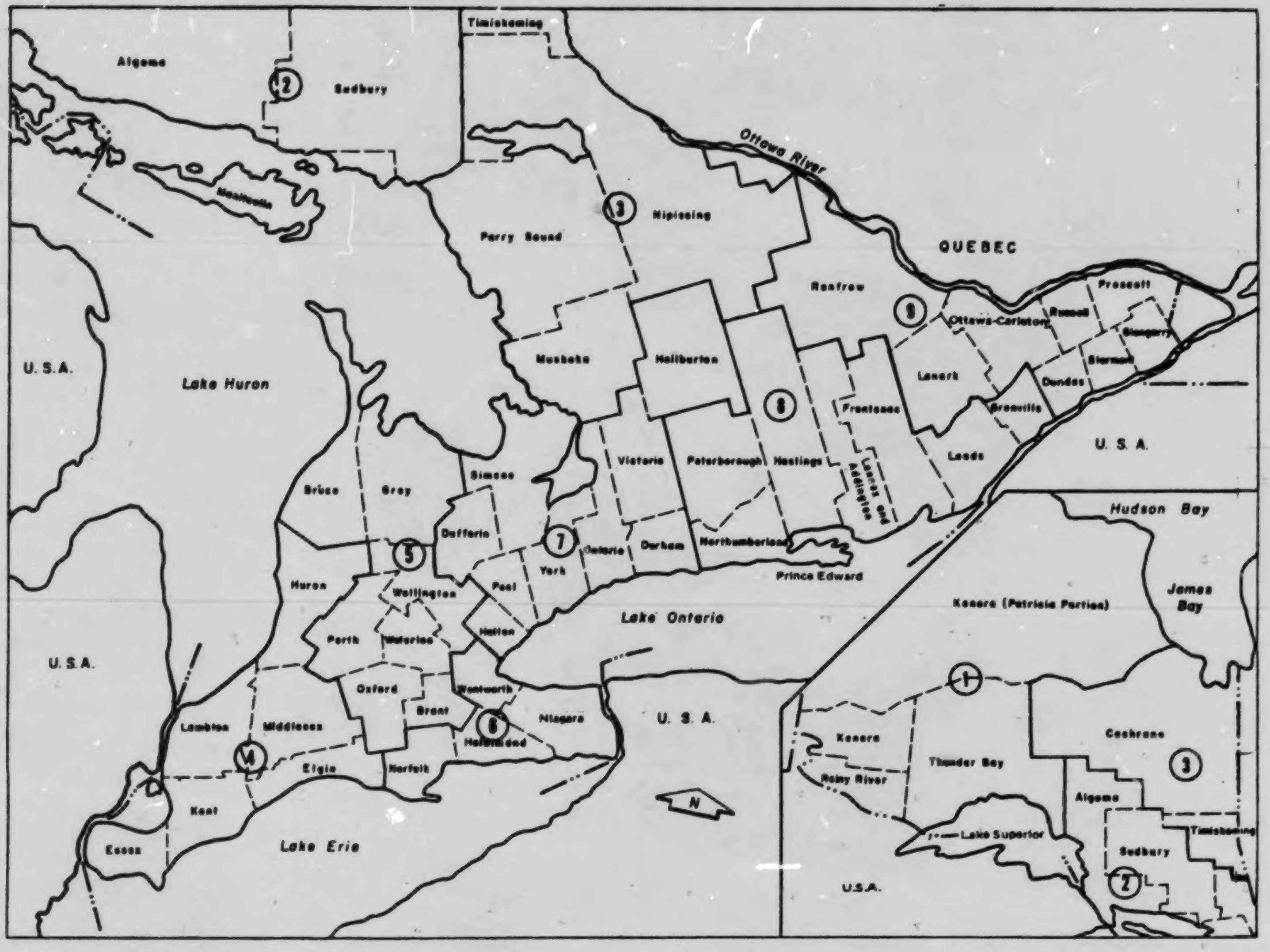
Some of the problems in generating the migration portion of this projection are described in a paper, "Searching for a Descriptor of Net Internal Migration Among Counties of Ontario," which has been published in Internal Migration, The New World and the Third World (ed. by A.H. Richmond and D. Kubat, London: Sage Publications, 1976).

For the purpose of projecting fertility and mortality trends, general relationships which are known to exist between population trends and economic factors were utilized.

Some difficulty arose out of the fact that census data did not take into account all of the new political entities which have been created by the Ontario government in recent years. Indeed, among regional municipalities, data from the 1971 Census were available only for Niagara, Ottawa-Carleton, and York. In the first two cases, the boundaries of the new regional municipalities coincided closely with those for the counties from which they had been created and could be employed without serious loss of consistency with data from earlier years; in the third case, in order to maintain historical continuity, the data for the Regional Municipality of York were combined with those for the Municipality of Metropolitan Toronto in most of the tables given throughout this report, with some exceptions where separation of the data was useful in pointing up particular trends. Footnotes to the tables and the discussion in the next few pages of this Introduction cover the main problems which arose respecting these and other redefinitions of political entities. However, a full listing, including boundaries for newly created regional municipalities, territorial districts, and district municipalities, as established in 1971, is given in the Appendix to Section A.

This final report, along with a conference paper, "Demographic Bases for Forecasting Educational Requirements in Ontario," prepared for a Conference on Population Projections and Related Futures held at the Ontario Institute for Studies in Education in November 1974, deal with population across Ontario within the framework of "education regions," a concept which relates closely to, but is not identical with, that used by the Ontario Ministry of Education for purposes of administration. Like the grouping employed by the Ministry, the education regions used in this report include the Northwestern, Midnorthern, and Northeastern Regions across the northern parts of the province; the Western Region in the southwestern portion between Lake Huron and Lake Erie; the Midwestern Region, just west of Lake Ontario; the Niagara Region in the Niagara Peninsula; the Central Region at the northwest end of Lake Ontario; the Eastern Region along the northeast shores of Lake Ontario; and the Ottawa Valley Region between the St. Lawrence and Ottawa rivers. The map which follows indicates the location of these regions and the counties/districts/regional areas indicated therein.

COUNTIES, DISTRICTS AND REGIONAL AREAS OF ONTARIO BY EDUCATION REGIONS


Timiskaming
Algoma
Sudbury
Manitoulin
Nipissing
Perry Sound
Ottawa River
QUEBEC
Renfrew
Prescott
Ottawa-Carleton
Russell
Glengarry
Stormont
Dundas
Grenville
Lanark
Leeds
Frontenac
Lennox and Addington
Hastings
Peterborough
Victoria
Haliburton
Muskoka
Simcoe
Dufferin
Bruce
Grey
Huron
Wellington
Perth
Waterloo
Oxford
Brant
Wentworth
Halton
Peel
York
Ontario
Durham
Northumberland
Prince Edward
Haldimand
Niagara
Norfolk
Elgin
Middlesex
Lambton
Kent
Essex
Lake Huron
Lake Ontario
Lake Erie
U. S. A.
U. S. A.
U. S. A.
U. S. A.
U. S. A.
N
Hudson Bay
James Bay
Kenora (Patricia Portion)
Kenora
Rainy River
Thunder Bay
Lake Superior
Cochrane
Algoma
Sudbury
Timiskaming
U.S.A.
1
2
2
3
3
4
5
6
7
8
9

Code:

1. Northwestern Region
2. Midnorthern Region
3. Northeastern Region
4. Western Region
5. Midwestern Region
6. Niagara Region
7. Central Region
8. Eastern Region
9. Ottawa Valley Region

The extent to which the jurisdictions of school boards coincide with the grouping of counties/districts/regional areas into education regions as used throughout this report can be indicated in a general way from information given in the Ontario Ministry of Education's Directory of School Boards 1977.

The Northwestern Region includes the Rainy River, Kenora, and Thunder Bay Districts. The nine boards of education[2] operating within this region are the Atikokan, Dryden, Fort Frances-Rainy River, Geraldton, Kenora, Lakehead, Lake Superior, Nipigon-Red Rock, and Red Lake boards, along with nineteen district school area boards (public schools). Roman Catholic county and district separate school boards are the Dryden, Fort Frances-Rainy River, Geraldton, Kenora, Lakehead, and North of Superior district boards. In addition there are twenty-one other small or specialized boards operating throughout the region, of which nineteen are for public schools, two are Roman Catholic Separate, and one comes under the Department of National Defence.

In the Midnorthern Region--containing what is now the Regional Municipality of Sudbury and the Algoma and Manitoulin Districts--the Central Algoma, Chapleau, Espanola, Hornepayne, Manitoulin, Michipicoten, North Shore, Sault Ste. Marie, and Sudbury boards are the main public school boards. There are also seven district school area boards for the secondary schools in the public sector, including those for Asquith-Garvey, Foleyet, Franz, Gogama, Mill-Forest, Missarenda, and Oba Districts. Ten Roman Catholic school boards are operative, of which four are at the district or township level. The Department of National Defence maintains an additional board.

The Northeastern Region covers Cochrane, Parry Sound, Timiskaming, Nipissing District, and the District Municipality of Muskoka. The largest boards of education are those for Cochrane-Iroquois Falls, East Parry Sound, Hearst, Kapuskasing, Kirkland Lake, Muskoka, Nipissing, Timiskaming, Timmins, and West Parry Sound; there are also seven district boards for James Bay Lowlands, Airy, Bicknell, Canfield Moosonee, Murchison and Lyell, Sabine, and Smoky Falls. The Cochrane Iroquois Falls, the Kearney, and eight district school boards are the Roman Catholic separate school boards operating in the region.

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[2] A board of education in Ontario is an authority with jurisdiction over tax-supported public elementary schools as well as tax-supported secondary schools within a specified area. Public school boards and Roman Catholic school boards ordinarily provide only elementary education.

The Midwestern Region includes the new Regional Municipality of Waterloo and the counties of Brant, Bruce, Grey, Oxford, Perth, and Wellington. There is a board of education for each county for the public sector (including Waterloo County) and combined or single county boards for the Roman Catholic separate schools.

In the Niagara Region we have the new Regional Municipalities of Hamilton-Wentworth, Haldimand-Norfolk, and Niagara. The Ministry's Directory lists Haldimand, Hamilton, Lincoln, Niagara South, Norfolk, and Wentworth boards as the main county and municipal boards of education, other than the Roman Catholic boards. The latter include the Haldimand-Norfolk, Hamilton-Wentworth, Lincoln, and Welland County Roman Catholic Separate School Boards. Since only Niagara Regional Municipality was in existence in 1971, data for the other two regional municipalities have been presented in relation to the areas out of which they were created. However, part of the population of Burlington, which was recorded in Wentworth County in 1966, was tabulated as belonging to Halton County under the 1971 Census procedures. The boundaries of the Regional Municipality of Niagara coincide with boundaries for the combined Lincoln and Welland Counties as defined in years prior to 1971.

The Central Region contains the largest number of counties and/or regional municipalities in the province. It includes Dufferin, Haliburton, Simcoe, and Victoria Counties, as well as the Regional Municipalities of Durham, Halton, Peel, York, and Metropolitan Toronto. Main school boards operating in the region include the Borden CFB, Dufferin County, Durham County, East York, Etobicoke, Haliburton County, Halton, Metropolitan Toronto, North York, Peel, Scarborough, Simcoe County, Toronto, Toronto CFB, Victoria County, York Borough, and York County boards and some specialized boards for handicapped students. Separate school boards include Dufferin-Peel, Durham Region, and Halton Roman Catholic, Metropolitan Separate, Penetanguishene Protestant, Simcoe County, and York Region Roman Catholic, as well as a few specialized boards for the handicapped.

For the most part, the county boards in the Central Region relate directly to the county patterns set forth in this report, as follows:

(1) The jurisdiction of the board of education for the Regional Municipality of Durham generally coincides with boundaries for Durham and Ontario Counties. However, the Townships of Mavers, Cavan, and Hope, the Village of Millbrooke and the Town of Port Hope from Durham County, and the Townships of Rama and Mara and a portion of the Township of Pickering from Ontario County are excluded from the board's jurisdiction.

(2) The boards of education for the Boroughs of East York, Etobicoke, North York, Scarborough, and York, as well as the boards for the City of Toronto and for the Regional Municipality of York, relate to York County and the combined Regional Municipality of York and the Municipality of Metropolitan Toronto. In some instances separate data are given for Metropolitan Toronto.

(3) The jurisdiction of the board of education for Halton generally coincides with Halton County but excludes a portion of the Town of Oakville and the Township of Nassagaweya.

(4) The jurisdiction of the board of education for Peel is roughly defined by boundaries for Peel County but includes portions of the Town of Oakville and the Township of Nassagaweya from Halton County.

In the Eastern Region we find the counties of Frontenac, Grenville, Hastings, Leeds, Lennox and Addington, Northumberland, Peterborough, and Prince Edward. The major boards of education with jurisdictions in this region are Frontenac County, and Hastings County Boards, Leeds and Grenville County, Lennox and Addington County, Northumberland and Newcastle, Peterborough County, and Prince Edward County; also Roman Catholic boards for Frontenac-Lennox and Addington County, Hastings-Prince Edward County, Lanark Leeds and Grenville County, and Peterborough-Victoria-Northumberland and Newcastle. There are also Canadian Forces Boards at Kingston and Trenton.

Boards within Frontenac, Hastings, Leeds and Grenville, and Lennox and Addington, and Prince Edward County have jurisdictions corresponding to census county definitions. However, in Northumberland and Newcastle the County Board also has jurisdiction over the Town of

Newcastle and the Newcastle Townships of Clarke and Darlington as well as the Town of Port Hope and the Township of Hope, in Durham County. The County Board of Education in Peterborough has jurisdiction over the Township of Cavan and the Village of Millbrook, from Durham County, as well as over the County of Peterborough.

The Ottawa Valley Region contains the Regional Municipality of Ottawa-Carleton, wherein the Cities of Ottawa and Vanier and the Village of Rockliffe Park are located, along with surrounding Townships of West Carleton, March, Nepean, Gloucester, Cumberland, Osgoode, Rideau, and Goulbourn. The counties of Lanark, Prescott, Russell, Renfrew, Stormont, Dundas, and Glengarry also are in this Region. In the Regional Municipality of Ottawa-Carleton, the Carleton, City of Ottawa, Ottawa Board, Ottawa CFB Board, and the Roman Catholic Carleton and Ottawa Separate School Boards are the main boards of education. County boards exist for Lanark, Prescott and Russell, Renfrew, and Stormont Dundas Glengarry; separate boards for Roman Catholic schools function for Prescott and Russell County, Renfrew County, and Stormont Dundas Glengarry. Other boards include the Ottawa and the Petawawa CFB boards, the Protestant Separate Board of the township of Grattan, and the Ottawa Crippled Children's Centre. The boards within the Regional Municipality of Ottawa-Carleton can make direct use of census data since the Township of Cumberland's move from Russell County to Ottawa-Carleton was also accomplished within the definition of census units. Lanark, Prescott and Russell, Renfrew, and Stormont Dundas Glengarry boards can relate directly to trends in the respective counties which they serve.

Certain problems arise with the general mode of presentation of information within this report. For instance, one might question whether indicated trends in population generally hold true across some large areas, since the distribution of population, especially in the more remote parts of the province, is often relatively concentrated. However, the location of educational facilities largely coincides with the distribution of population. If we consider the Northwestern Region of the province, for instance, 16,581 public school students out of a total of 27,571 in the region, or 60% of the total enrolment, was in the District of Thunder Bay where 65% of the region's total population was located.[3] And so, while the distribution of numbers of population through the region certainly needs to be kept in mind, rates for migration and fertility--which are the most important causes of fluctuations in school enrolment in Ontario--are not seriously affected by the distributional imbalance of population because levels of school enrolment are roughly proportionate to population size.

A more serious difficulty is the need to rely upon data which, in a period of considerable social transition, are already out of date. What are the implications of 1971 age-specific fertility rates when we are already in 1978? With improving data systems, the problem of keeping vital statistics up to date may become less worrisome; however, unless population size is also determined on a current basis, it is dangerous to reach conclusions about trends and to generate population projections for the future on that basis. It would not be at all difficult to report the number of last year's births, deaths, and marriages in Ontario. But one may not safely infer from those data that births, deaths, or marriages are going to go up or down in volume, since the population base which generates these occurrences must be taken into account. Without young persons of marriageable age there will be few marriages and the number of associated births will likely be lower. With a decline in proportion of women in the childbearing ages there will be few births; without persons in the older age groups the number of deaths will fall; and so on. And so, because vital events reflect not only a host of social, economic, and political influences, as well as the distribution of the base population, population experts prefer to analyse and interpret these trends through the use of various types of rates. By calculating rates in relation to the body at risk one can express probabilities respecting the likelihood of occurrence of vital events and, on the assumption of reasonable expectations for future directions of demographic trends, population change can be projected. However, up-to-date estimates of population by age and sex, as well as statistics for births, deaths, and migration, are needed in order to do this effectively. The results of the 1976 Census, which might now be used to calculate new rates for fertility, mortality, and migration, became available just as this report was going to press. It was not feasible to revise all of the calculations; however, in order to allow for an apparent decline in population mobility in some parts of the province, a low projection was generated. Also the last chapter of Section A was revised to incorporate some comparisons of the projections with 1976 Census results. This provides the reader with a base which permits assessment of which projection is most pertinent to population trends in any particular county, district, or regional area.

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[3] Ontario Ministry of Education, Public School Enrolment by School within County, within Education Region, Enrolment as of September 30, 1974, p. 11 and Tables 3.2 and 3.3 below.

This research project has been conducted under the direction of Dr. Betty B. Macleod, Associate Professor in the Department of Educational Planning at the Ontario Institute for Studies in Education. G. Sabir Shakeel, Research Associate, was responsible for drawing up the technical specifications for computer programming and for overseeing the development of projections by single years of age, as given in Section C of this report. William A. Postl of the Department of Computer Applications at OISE developed most of the computer programming for the study, in consultation with Richard G. Wolfe, the director of computer services at OISE. In particular, Richard Wolfe's contribution relates chiefly to those aspects of migration projection as described on pages 304 to 337, and William Postl's to the projection program as given on pages 338 to 350. Khurshid Anwar and other assistants provided research support.

Section A: Population in Ontario's Education Regions

Chapter One
What's Happening to the Birth Rate?

Introduction

The number of live births in any given year is of particular interest to educational planners since it indicates approximately how many students are likely to enter the school system five or six years later. Enrolments in the early grades of Ontario's school system are almost identical with the population of the relevant age groups, and even in later grades the number in each age group is an important determinant of educational demand.

Trends in fertility are influenced by a number of factors. Age, marital status, duration of marriage, income, religion and religiosity, present number of children, physical health, occupation and labour force participation, rural or urban residence, and adequacy of housing are some of the factors which are known to influence fertility levels. In addition, the desire for children changes from one year to another according to the strength of nationalist feelings, the prevalence of "limits to growth" discussions, the extent of publicity given to environmental and other world conditions, as well as according to the stage of the life cycle and the individual circumstances wherein the potential parents find themselves. The improved ability to plan births as a result of the pill and other modern contraceptives also explains some of the ups and downs of fertility, since the better contraceptive control becomes, the more volatile the level of fertility is likely to be, because the desire for children can respond more easily to the wide variety of changing pressures arising cut of both world conditions and family circumstances.

Predicting fertility under these circumstances is, to say the least, hazardous. The most we can do is to assess the direction of present trends, to guess whether or not they will continue along existing patterns, and to make plans to revise projections at frequent intervals.

The best known indicator of fertility is the crude birth rate, defined as the number of live births per annum per thousand population. This rate is useful for making rough comparisons across large areas and over time. However, since there are large blocks of population which are generally incapable of giving birth--females under 15 years of age and over 49 years of age, as well as all the male population--the crude birth rate fails to relate the incidence of births to the possibility of their occurrence in an entirely satisfactory manner.

In order to analyse fertility trends more adequately, we relate births to females in the childbearing ages. We can construct a general fertility rate which indicates the number of live births in a given year per thousand women in the entire span of childbearing years from 15 to 49, or we can compute age-specific rates for women of particular ages within the childbearing span. From these basic rates we can then go on to construct the total fertility rate and gross and net reproduction rates, which are described below in relation to fertility across Ontario.

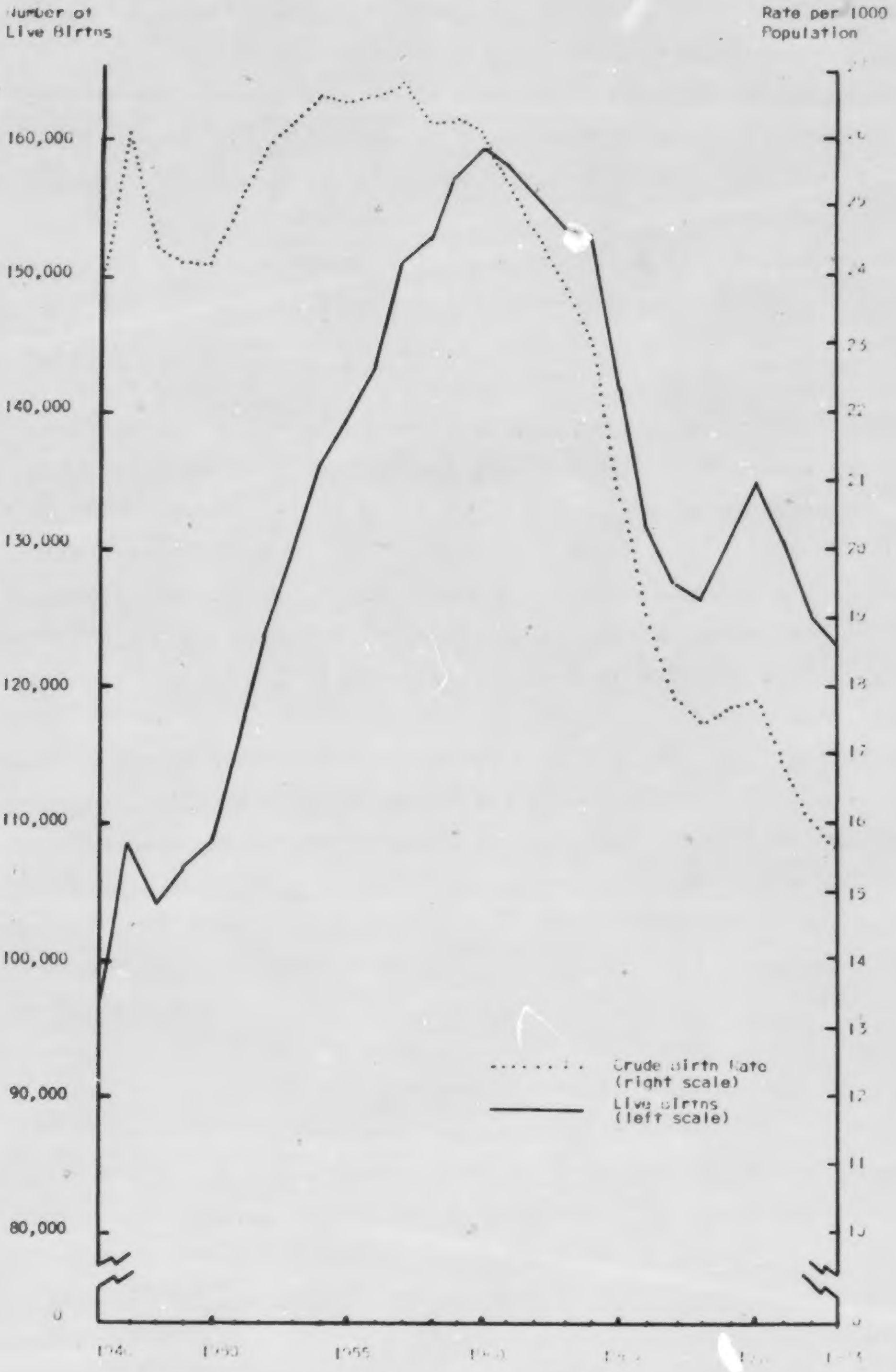
Because marriage exposes the female to the risk of conception, marital status is an important determinant of fertility. While the marriage-fertility relationship appears to be weakening, so that more births are occurring out of wedlock than formerly, the majority of births still occur within marriage.

Fertility in Transition

Figure 1A shows the trends for live births in Ontario since 1946 as well as the crude birth rate--the births per thousand population. The numbers of births which occurred in Ontario's education regions in 1956, 1961, 1966, and 1971 are given in Table 1.0 and crude birth rates are shown in Table 1.1.

From 1946, when there were about 97,000 live births, births for Ontario increased in number every year to a high of 159,000 in 1960. Since that time births have been declining. By 1967 they had fallen to 127,000, below the 1953 level; and, after increasing to 135,000 in 1970, they fell again to 124,000 in 1973. The rate of births per thousand population reflected these trends, rising to 26.8 per thousand in 1957, then falling to below 16 per thousand in 1973. The high point in the

FIGURE IA: BIRTHS IN ONTARIO, 1946 TO 1973



Source: Province of Ontario, Vital Statistics 1967 and 1974 (Toronto: Office of the Registrar General, years concerned), Table E.

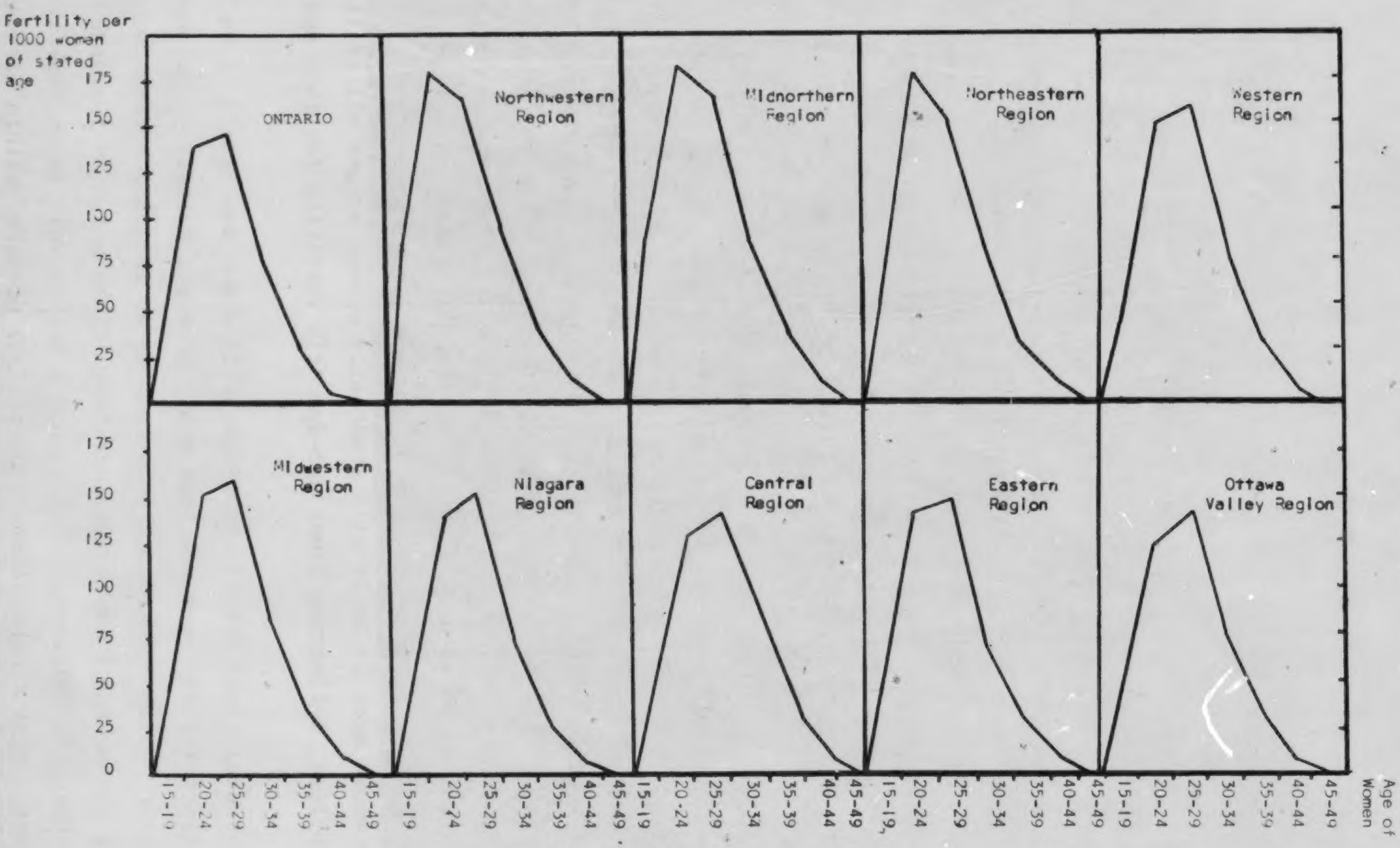
crude birth rate (1957) did not occur in the same year as the highest number of births (1960) because immigration and high levels of fertility during the '50s increased the population base over the period.

Age-specific fertility for women of various ages in the childbearing years is shown for Ontario and the education regions in Figure 1B. The data for counties, districts, and regional areas by education region are given in Table 1.2.

By summing the age-specific fertility rates in Table 1.2, we can set up a hypothetical measure--the total fertility rate--of how many children a woman is likely to bear during the childbearing years. This number is expressed in the tables according to the expected number of births to 1,000 women passing through ages 15 to 49, if age-specific rates remain unchanged. By dividing the number of children by 1,000, we obtain an estimate of the number of children any one woman is likely to have during her lifetime. On the basis of this rate, highest fertility in 1971 was in Manitoulin in the Midnorthern Region, where a woman was likely to have over 3 children; lowest fertility was in Brant (Midwestern Region), Wentworth (Niagara Region), York--including Toronto (Central Region)--Grenville (Eastern Region), Lanark and Ottawa-Carleton (Ottawa Valley Region), where only 2 children were likely to be born per woman. Across Ontario generally, the average woman would bear 2.2 children during her childbearing years if age-specific fertility remained unchanged from the 1971 pattern. If age-specific fertility declined, the number of children expected would be less.

The number of live births across Ontario fell about 20% over the period 1961-71. This trend was apparent throughout most parts of the province from 1956. The chief exception was Kenora in the Northwestern Region, where the number of live births did not decline until after 1966. Such general declines in fertility sometimes can be attributed to distortional elements of sex or age distribution, but this has not been the case for Ontario over recent years. In fact, age distribution offset the effects of falling fertility to some extent, since the number of women in the childbearing ages rose across Ontario between 1961 and 1971 (see Table 1.16 below). Although the data are not given in the tables for this chapter, there was actually a rise in proportion of women in the peak childbearing ages, which militated against decline in the number of births, particularly over the period 1966-71. By 1971, women in the

FIGURE 1B: AGE SPECIFIC FERTILITY RATES FOR EDUCATION REGIONS OF ONTARIO, 1971



Source: Computed from data obtained from Statistics Canada.

childbearing ages 15 to 49 constituted over 50% of the total population (Table 1.15).

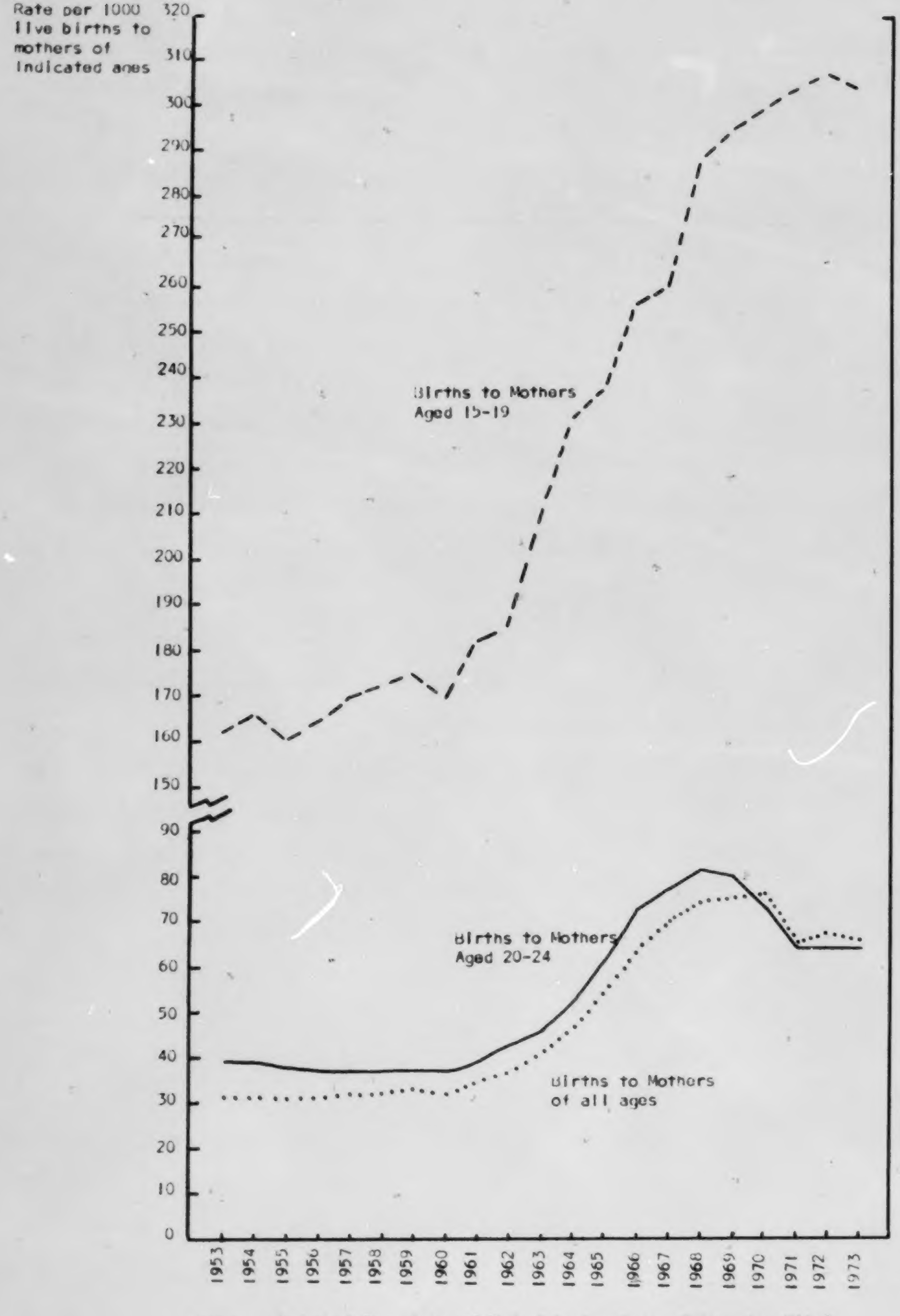
If we examine changes in age-specific fertility rates over 1966-71, as set forth in Table 1.2, we find that fertility declined least for women aged between 20 and 30, the peak years for childbearing. Indeed, there were even increases in fertility rates in 1971 over 1966 in Muskoka and Hastings for women aged 20 to 24 and in Dundas, Norfolk, Lambton, Huron, Dufferin, Grey, Muskoka, Bruce, Simcoe, Sudbury, Timiskaming, and Rainy River for women aged 25 to 29. However, fertility for women over 30 years of age declined substantially--on the order of 30% or more--in most areas, and fertility for the 15- to 19-year-old age group was also significantly lower throughout the province.

The percentage distribution of births by age of mother across education regions (Table 1.3) reflects the pattern of decline in age-specific fertility rates in that the proportion of births to women aged 30 and over declined generally from 1956, while the proportion of births to women aged 15 to 29, and particularly ages 20 to 29, increased. This was not an actual increase in fertility for women in the younger age groups, of course; what it amounted to was a greater concentration of fertility within the earlier years of childbearing. This concentration affected all age groups under 30 until 1966; after that year the proportion of births to women ages 15 to 19 declined slightly, except in the northern regions. Probably this trend towards proportionately fewer births to women aged 15 to 19 will eventually spread across all regions of the province, reflecting lower age-specific fertility for that age group.

The general trend for 15- to 19-year-old women was towards a decline in age-specific fertility over the long run. However, fertility for women in this age group rose temporarily in many areas in 1961, before resuming a downward trend; and between 1966 and 1971 it had actually increased in Prescott, Russell, Haliburton, Huron, and Bruce as well as in Muskoka and Cochrane. Most of the births (70% to 75%) occurred within marriage rather than outside it.

However, illegitimacy was widespread (see Table 1.4). While illegitimacy was highest for 15- to 19-year-old women, it actually increased for all ages of mother except ages 20 to 29 (see Figure 1C). The highest rates of illegitimacy (30% or more of live births occurring out of wedlock to 15- to 19-year-olds) occurred in Manitoulin (based on only 17

FIGURE IC: ILLEGITIMACY RATES PER THOUSAND LIVE BIRTHS TO MOTHERS OF SPECIFIED AGES IN ONTARIO 1953-1973



Source: Computed from data published in Province of Ontario, Vital Statistics 1973 (Toronto: Office of the Registrar General), Table F, and additional data supplied by the Office of the Registrar General.

cases), Ottawa-Carleton, Kenora, Middlesex, Peel, Simcoe, Lanark, Kent, Peterborough, Halton, York (including Toronto), Frontenac, Ontario, and Algoma.

The comparison of age-specific fertility rates for order of birth (i.e., whether the birth is that of a first, second, third, fourth, fifth, or more child) by age of mother (Table 1.5) indicates a decline in rates for first order births for ages under 25 and an increase for women aged 25 to 35, suggesting that there may have been a make-up effect because of delayed childbearing. Second order births had also risen slightly for women aged 25 to 30; however, higher order births for all women 25 and over had fallen off greatly in most areas; only in some remote parts of the province was higher order fertility anything like what had occurred in earlier years. Figure 1D indicates the pattern for Ontario of births by order for selected age groups of mothers. Resulting family size in 1971, based on fertility trends of earlier years, is summarized for counties in education regions in Figure 1E.

Trends in Marriage and Divorce

Marriages increased in relation to population over the period 1964 to 1972, largely because the postwar baby boom had reached the marriageable age groups. Because those age groups were larger than they used to be, the vital events associated with the baby boom generation affected the level of crude rates disproportionately. Consequently, as we can see from Table 1.6, both the number of marriages and the rate per thousand population have been increasing since about 1964, both across Canada and in Ontario. The most recent issue of Ontario Vital Statistics[1] reports over 72,000 marriages in 1974, with a rate of 9.0 per thousand population. While this rate has fallen slightly from its highest point in 1972, it is still almost as high as in the years immediately following World War II, when the return of men from the fighting forces overseas contributed to relatively high marriage rates.

Although marriages increased in number in Ontario from about 1964, divorces also increased. This trend was evident as early as 1965, as can

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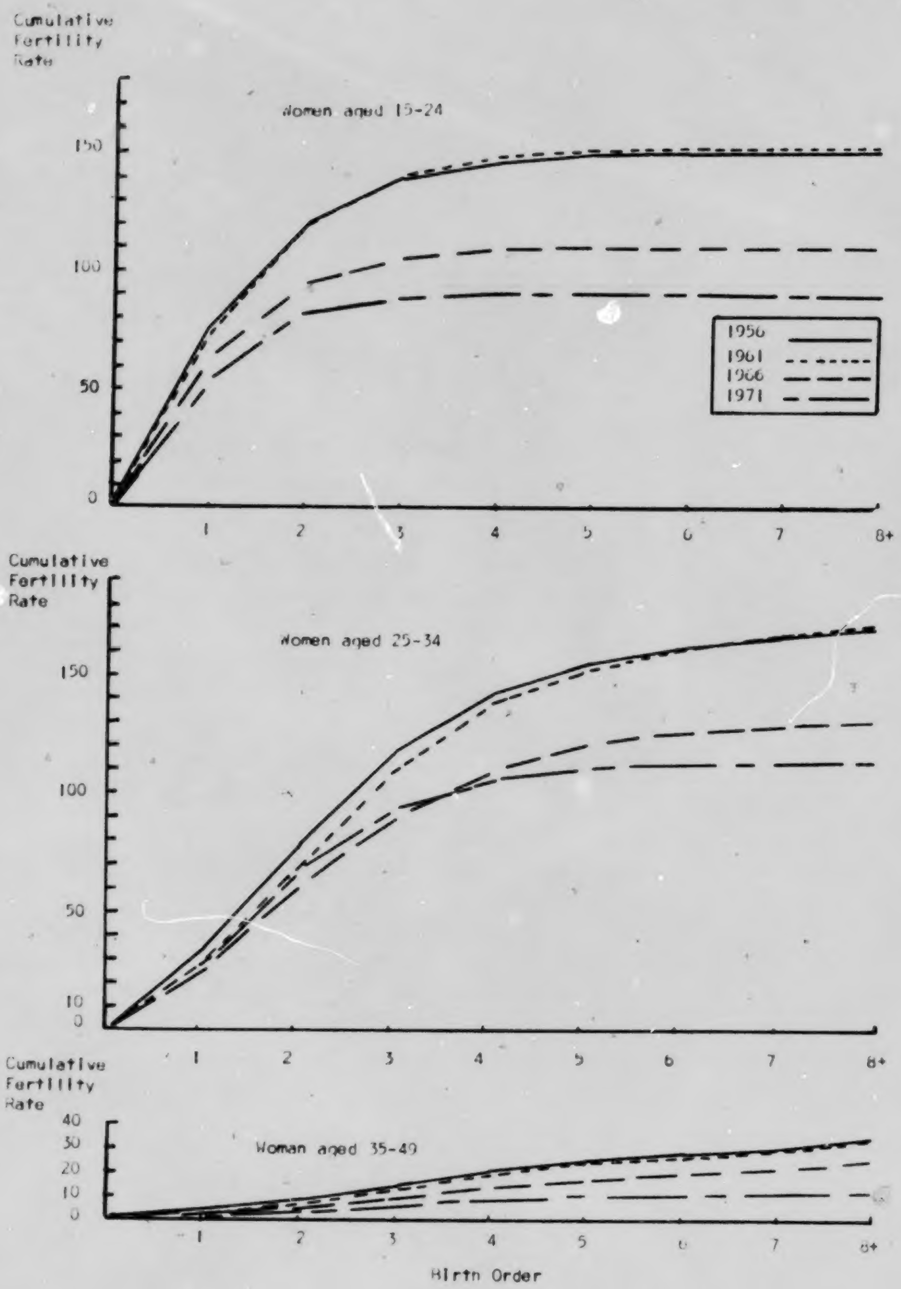
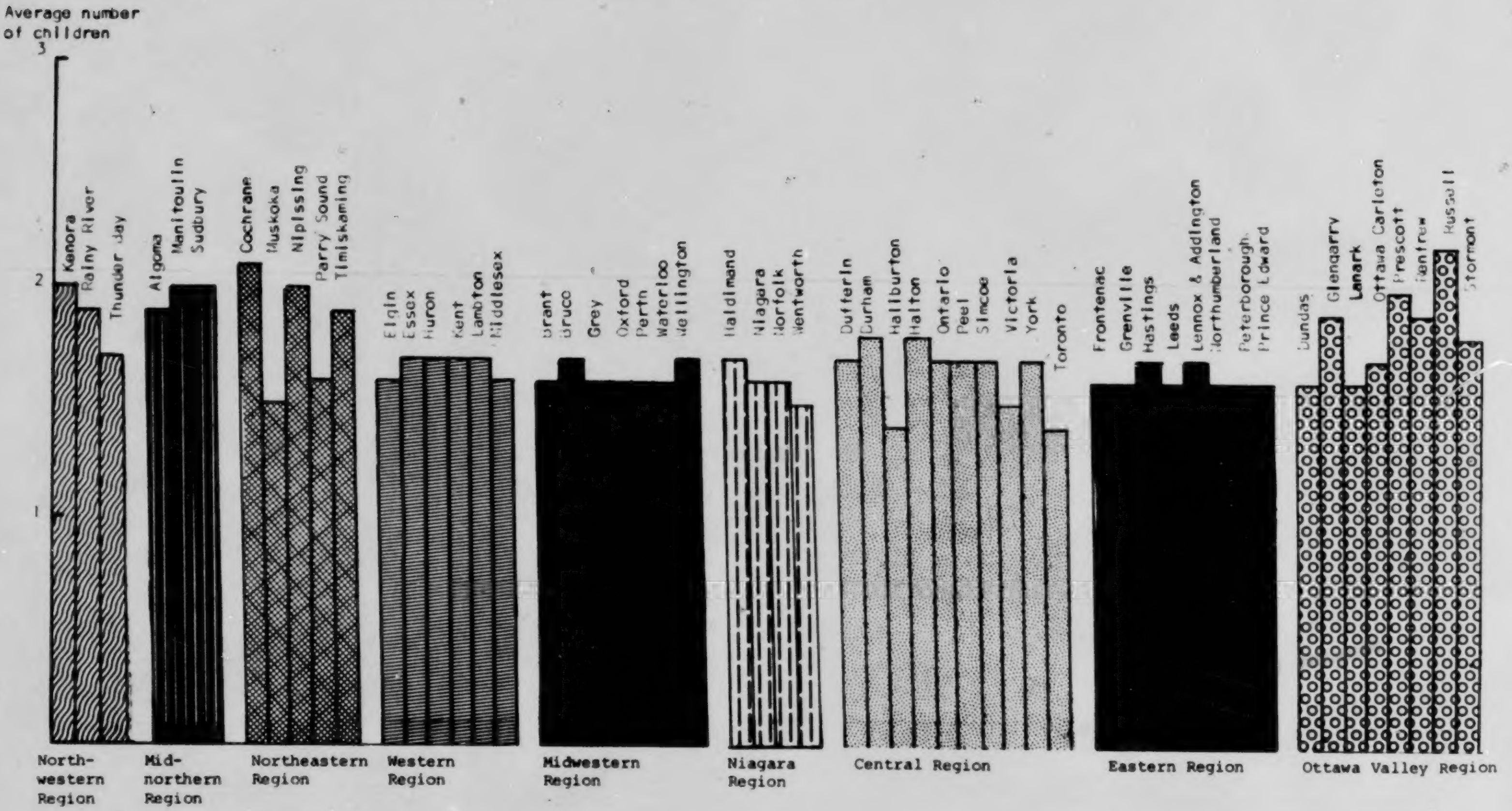
[1] Province of Ontario, Vital Statistics 1974 (Toronto: Office of the Registrar General), Table P.

FIGURE 1D: CUMULATIVE AGE SPECIFIC FERTILITY RATES BY BIRTH ORDER, SELECTED AGES OF WOMEN, ONTARIO 1956, 1961, 1966 and 1971



Source: Computed from data supplied by Statistics Canada

FIGURE 1E: AVERAGE NUMBER OF CHILDREN, 24 YEARS AND UNDER, AT HOME PER FAMILY IN ONTARIO EDUCATION REGIONS, 1971



Source: Statistics Canada 1971 Census of Canada, Families, Children in Families, Bulletin 2.2-3 (Ottawa: Information Canada, 1973) Cat.93-715, Table 15 be seen from Table 1.7. After 1968, when the grounds for divorce were widened,[2] the number of divorces climbed steeply (see Table 1.8).

Although numbers of marriages and crude rates have been rising, we can see from Tables 1.9 and 1.10--which relate the number of marriages of males/females in a specific age group to the number of single males/females in that age group--that the tendency to marry, as compared to remaining single, is declining very significantly. If we assume that the explanation does not lie in sexual abstinence, then a very important transition in cohabitation practices is under way which is likely to have significant implications for fertility and other aspects of social conduct. Marriage is already becoming a less important condition to having babies than it used to be, as indicated by trends in illegitimate fertility (see Table 1.4).

Tables 1.9 and 1.10 indicate a severe decline in the likelihood of marriage since 1961 even for ages 20 to 35, when most marriages occur. Both males and females were much less likely to marry at any particular age. However, there were some interesting trends over the 1961-71 decade. While marriage rates had declined consistently for all ages of females, they had increased over ages 25 to 35 for males, going down for other ages. The explanation probably lies in the relationship between proportions of males with females three to five years younger, the usual differential in age at marriage in Ontario. The ratios of males per 100 females in 1971 were as follows for the prime marriage ages:

men 20-24 to women 15-19 ... 95.35
men 25-29 to women 20-24 ... 85.51
men 30-34 to women 25-29 ... 86.24
men 35-39 to women 30-34 ...101.33

This suggests that men aged 20 to 35 were in short supply in relation to the most eligible marriage partners and accordingly their age-specific marriage rates, although less than in 1966, were relatively higher than in 1961. The decline since 1966 probably reflected adjustment through men marrying older women than formerly, a trend which is likely to continue. (Age by age, there was a relative shortage only for males aged 20 to 24 in 1971.)

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[2] See Macleod, et al., Patterns and Trends in Ontario Population, pp. 104-108.

In terms of the distribution by age within total marriages in 1971 (Table 1.11), there appeared to be a shift towards a somewhat older marriage age for both sexes, so that proportions getting married under 20 years of age were smaller than they had been in 1966. More of the first marriages were occurring during ages 20 to 34 than formerly, probably reflecting the tendency for persons aged 15 to 19 to delay marriage about five years as compared with earlier years.

Age-specific marriage rates are not available at the level of county/district regional area but the relative importance of marriage across the province can be broadly assessed from Table 1.12, which relates the number of marriages to the population per thousand, the population 15 years of age and older per thousand, and the unmarried population 15 years of age and older per thousand. The third measure is the most useful in that it eliminates both underage population and population not at risk of marriage because they are already married. According to those statistics, from 30 to 40 eligible persons per thousand were marrying throughout the various parts of Ontario. The rates were highest in Sudbury (45.98), Stormont (45.81), Hastings (42.96), and Nipissing (42.48), and were lowest in Dufferin (31.07), Prince Edward (31.24), Russell (31.75), and Lennox and Addington (31.91). In an earlier report evidence was found that marriages for persons under 25 years of age tend to be delayed more in highly urbanized regions than elsewhere throughout Ontario.[3]

Reproduction and Natural Increase

There are only two ways by which population can increase--either by reproducing faster than deaths occur, or by more people moving into an area than move out. When births exceed deaths there is a natural increase of population.

The natural increase throughout Ontario's education regions is given in Table 1.13, and the longer run trend of natural increase for the province as a whole is set forth in Table 4.1 of Chapter Four (p. 183). Since the beginning of the century natural increase accounted for from

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[3] Betty B. Macleod, The Development of Improved Bases for Forecasting School Age Population Throughout Ontario, Report for Year 2 (Toronto: Ontario Institute for Studies in Education, 1974), pp. 83, 91-96.

60% to 80% of the province's population growth. Over the shorter run period from 1966-71, and for the counties, districts, and regional areas in particular, the percentages have varied much more widely. Indeed, natural increase ranged from 10.89% of population growth in Victoria County to 395.11% in the Thunder Bay district. In the latter case, the high rate of natural increase contributed both to the growth of the area and to out-migration. Some parts of northern Ontario where natural increase was high experienced a net loss of population because out-migration occurred at an even higher rate than natural increase.

The natural increase of an area depends upon mortality, age-specific fertility, and the number of women in the childbearing ages. If we assume that differentials in mortality are not very substantial, areas which have relatively low age-specific fertility and high proportions of women of childbearing age may have a higher natural increase than areas with a high age-specific fertility and low proportions of women of childbearing age. Consequently the distribution of the female population in relation to total population needs to be taken into consideration when projecting fertility trends. By glancing at Table 1.14 where the number and percentage of female population for the education regions are indicated, we might expect that future crude birth rates would be higher in the Midnorthern, Northwestern, Northeastern, and Ottawa Valley Regions than in other regions of Ontario, simply because the proportions of women aged 10 to 24 who are in and about to enter the ages of highest fertility are greater than elsewhere. We also know from Table 1.2 that within these four regions total fertility rates are lowest in the Ottawa Valley Region, so that relatively low levels of age-specific fertility in that region may offset the proportion of females of childbearing age. Over the decade 1961-71 the large increases in the number of women in the childbearing ages accounted importantly for growth through natural increase in the Central Region and the Midwestern Region (see Table 1.16).

Natural increase can be expressed as a rate per thousand population (i.e., births minus deaths per 1000) as in Table 1.17, which refers to the year 1971 only. Rates of natural increase ranged from lows of 1 in Haliburton and Victoria to highs of around 15 per thousand in Sudbury, Kenora, and Peel. Because death rates did not vary greatly across the province, these natural increase rates coincided with the pattern of age-specific fertility.

We can measure the rates at which women are reproducing in a way similar to measuring fertility. By summing age-specific fertility rates for women in the childbearing ages, we obtained the total fertility rate; by summing age-specific fertility for female babies only, instead of for all babies, we can estimate to what extent a woman is likely to produce another female.[4] This measure is known as the gross reproduction rate. Gross reproduction rates for counties, districts, and regional areas in education regions are given in Table 1.18. Rates were highest in Kenora, and lowest in Ottawa-Carleton, ranging from 1.6 per woman to 0.9, which means that a woman in Kenora would have about two daughters while a woman in Ottawa-Carleton would have one or perhaps none at all.

A further measure often used in describing reproduction is the net reproduction rate. Net reproduction rates differ from gross reproduction rates in allowing for mortality of women. Since mortality for women in the younger ages is very low in Ontario, the difference between the two rates is minimal,[5] and consequently net reproduction rates have not been included in this report.

Conclusions

There has been a drastic decline in fertility throughout the province, and the decline gives every indication of continuing into the future. All of the measures which we traditionally use respecting fertility, natural increase, and reproduction reflect the effects of this decline.

The reason for this decline cannot be effectively documented since no adequate study has been undertaken of the factors contributing to increases and decreases in fertility and changes respecting desired family size in Ontario. However, what we can surmise about these relationships suggests that economic conditions, especially employment and income levels, the increasing participation of women in the labour force, housing, and concern about environmental factors, including overpopulation on the global scale, are some of the considerations affecting childbearing and family size.

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[4] We can measure male reproduction this way as well, by summing male age-specific fertility rates for male babies. However, this is a less useful measure and has not been used in the present investigation.

[5] See the rates for Ontario and economic regions in Betty B. Macleod, The Development of Improved Bases for Forecasting School Age Population Throughout Ontario, Report for Year 1 (Toronto: Ontario Institute for Studies in Education, 1973), p. 21.

Marriage customs are undergoing a considerable change, which may affect family size in the future. It is not known whether the growing prevalence of common-law marriage, changes in marriage partners, and the increasing frequency of marital disruption and dissolution are associated with a lessened desire to have children, or whether the result will simply be more one-parent families or more families with step-mother or step-father involvement. Research is needed in this area in order to understand the likely effects of these changes.

On the basis of trends in fertility rates and other data presented in this chapter, as well as additional data which have been collected but not included here for reasons of size and economy, we expect that fertility rates across the province will become much more uniform in the counties, districts, and regional areas in future years. The hypotheses about future fertility which we have used as input to the population projections in Section C are that fertility will decline for women over 34 years and under 20 years of age to minimal rates by 1986, where minimal rates are defined as the lowest for those age groups within any county, district, or regional area in the economic region[6] in 1971. It was further assumed that age-specific fertility would decline for women aged 20 to 34 in areas where rates in 1971 were above the regional level; in counties, districts, and regional areas where rates were below that for the economic region it was assumed that age-specific fertility would remain constant.

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[6] Economic regions, rather than education regions, were used as the basis for projecting demographic rates because there are well-known relationships between population characteristics and economic factors. Although there is some evidence of relationships between population and educational parameters, these are not as well documented.

TABLE 1.0

LIVE BIRTHS IN COUNTIES, DISTRICTS AND REGIONAL AREAS IN EDUCATION REGIONS OF ONTARIO, 1956, 1961, 1966 and 1971

County, District or Regional Area	1956	1961	1966	1971
Northwestern Region	5571	6180	5068	4389
Kenora[1]	1068	1180	1355	1258
Kenora (Patricia Portion)	399	544	504	
Rainy River	811	771	528	484
Thunder Bay	3293	3685	2681	2647
Midnorthern Region	7831	9244	6270	6902
Algoma	2547	3544	2471	2297
Manitoulin	303	306	216	181
Sudbury	4981	5394	3583	4424
Northeastern Region	7573	7750	5028	4960
Cochrane	2784	2914	2013	1901
Muskoka[2]	610	569	362	463
Nipissing	1967	2196	1409	1396
Parry Sound	752	720	453	454
Timiskaming	1460	1351	791	746
Western Region	19080	19419	15851	15999
Elgin	1249	1351	1055	1071
Essex	6835	6160	5644	5536
Huron	1192	1242	825	804
Kent	2312	2382	1819	1796
Lambton	2571	2678	1900	1924
Middlesex	4921	5606	4608	4868
Midwestern Region	12792	13445	12115	12253
Brant	1875	1851	1694	1415
Bruce	738	998	677	725
Grey	1352	1162	948	987
Oxford	1656	1672	1336	1246
Perth	1271	1267	1008	999
Waterloo	3999	4503	4753	4966
Wellington	1901	1992	1699	1915
Niagara Region	17009	17147	14737	12926
Haldimand	616	688	534	522
Niagara[3]				5475
Lincoln	2918	2858	2687	
Welland	3909	3918	3232	
Norfolk	1136	1134	886	846
Wentworth[4]	8430	8549	7398	6083
Central Region	49123	58277	53619	54104
Dufferin	358	317	285	377
Durham	961	903	749	686
Haliburton	179	175	102	112
Halton[5]	1992	3067	2933	3238
Ontario	3017	3527	3410	3254
Peel	2373	3084	3604	5021
Simcoe	3307	3490	2382	2848
Victoria	602	626	481	466
York[6]	36337	43088	39673	38102
Metropolitan Toronto				35566

Table 1.0 (cont'd)

County, District or Regional Area	1956	1961	1966	1971
Eastern Region	9652	10180	7606	7110
Frontenac	2085	2334	1787	1736
Grenville	526	510	421	328
Hastings	2378	2590	1553	1527
Leeds	965	1033	884	802
Lennox & Addington	499	509	458	455
Northumberland	874	899	701	661
Peterborough	1771	1791	1418	1327
Prince Edward	544	514	384	274
Ottawa Valley Region	14675	15999	12187	11610
Dundas	441	377	275	262
Glengarry	470	422	337	261
Lanark	835	826	609	602
Ottawa-Carleton[7]	7585	8916	7457	7424
Prescott	726	704	471	397
Renfrew	2415	2611	1568	1436
Russell[8]	539	564	391	279
Stormont	1664	1579	1079	949
ONTARIO[9]	143306	157641	132481	130253

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1. Patricia Portion, which was listed separately in earlier years, was included in Kenora in 1971.

2. The District of Muskoka became the District Municipality of Muskoka in 1971.

3. Lincoln and Welland Counties had become the Regional Municipality of Niagara by 1971.

4. Part of the population of Burlington, included in earlier years, is excluded in 1971.

5. Excludes part of the population of Burlington in 1966 and earlier years; includes it in 1971.

6. Combines the Municipality of Metropolitan Toronto and the Regional Municipality of York in 1971 in order that data may be consistent with data for York County in earlier years. Separate data for Metropolitan Toronto are also noted.

7. Became a Regional Municipality in 1969, including Cumberland Township which is excluded in earlier years.

8. Excludes Cumberland Township in 1971; includes it for earlier years.

9. For full listing of counties, districts and regional areas, including their subdivisions in 1971, see Appendix.

Source: Data courtesy of Statistics Canada and the Office of the Registrar General for Ontario. Data differ slightly from those published in Province of Ontario, Vital Statistics publications. The total births given in Vital Statistics for 1971, for instance, were 130,395 for Ontario. The differences are due to rounding, distribution of data from "unknown" categories, and corrections for place of residence and place of occurrence.

TABLE 1.1

CRUDE BIRTH RATE FOR ONTARIO COUNTIES, DISTRICTS AND REGIONAL AREAS IN EDUCATION REGIONS, 1956, 1961, 1966 and 1971

County, District or Regional Area	1956	1961	1966	1971
Northwestern Region	28.5	28.6	20.4	17.9
Kenora[1]	29.7	30.2	21.5	24.3
Kenora (Patricia Portion)	35.5	44.2	35.3	
Rainy River	31.8	29.1	20.5	19.5
Thunder Bay	26.8	26.6	18.7	18.3
Midnorthern Region	33.3	32.1	20.0	20.9
Algoma	31.0	31.8	21.8	18.9
Manitoulin	27.4	27.4	20.5	16.4
Sudbury	35.1	32.5	20.6	22.4
Northeastern Region	30.2	28.3	18.3	17.6
Cochrane	32.1	30.5	20.7	19.9
Muskoka[2]	24.3	21.3	13.0	14.5
Nipissing	32.5	31.1	19.2	17.8
Parry Sound	26.8	24.3	16.0	15.0
Timiskaming	29.3	26.5	16.8	16.1
Western Region	26.4	24.7	18.6	17.3
Elgin	21.1	21.5	17.0	16.1
Essex	27.7	23.9	20.1	18.1
Huron	23.0	23.1	15.2	15.2
Kent	27.1	26.7	18.9	17.8
Lambton	28.6	26.2	17.6	16.8
Middlesex	25.8	25.3	18.5	17.3
Midwestern Region	24.7	23.3	18.8	17.1
Brant	24.0	22.1	18.6	14.0
Bruce	22.3	23.2	15.7	15.3
Grey	22.2	18.7	15.1	14.9
Oxford	25.4	23.7	17.6	15.5
Perth	23.1	22.1	16.7	15.9
Waterloo	26.9	25.5	21.9	19.6
Wellington	25.1	23.5	18.0	17.6
Niagara Region	26.2	23.5	18.7	15.5
Haldimand	23.6	24.4	17.8	16.0
Niagara[3]				15.8
Lincoln	26.1	22.6	18.4	
Welland	26.1	23.8	18.1	
Norfolk	24.6	22.5	17.5	15.6
Wentworth[4]	26.7	23.8	18.8	15.2
Central Region	25.7	25.1	19.4	17.0
Dufferin	23.0	19.7	16.7	17.8
Durham	26.8	22.6	16.8	14.4
Haliburton	22.3	19.6	13.0	12.3
Halton[5]	29.2	28.7	20.8	17.0
Ontario	27.8	26.0	20.0	16.6
Peel	28.6	27.6	20.9	19.4
Simcoe	26.0	24.7	16.0	16.6
Victoria	21.3	21.0	15.5	13.3
York[6]	25.2	24.9	19.6	16.9
Metropolitan Toronto				17.0

Table 1.1 (cont'd)

County, District or Regional Area	1956	1961	1966	1971
Eastern Region	25.9	24.6	17.4	15.4
Frontenac	27.2	26.7	18.4	17.0
Grenville	25.6	22.3	18.0	13.2
Hastings	28.4	27.7	16.5	15.4
Leeds	22.4	22.0	18.0	15.9
Lennox & Addington	23.1	21.5	18.2	15.9
Northumberland	23.0	21.5	15.6	13.7
Peterborough	26.1	23.5	17.3	15.1
Prince Edward	25.7	24.4	18.1	13.3
Ottawa Valley Region	27.4	25.6	17.9	15.6
Dundas	26.0	22.0	16.1	14.9
Glengarry	25.1	22.0	18.5	14.0
Lanark	22.0	20.5	14.8	14.0
Ottawa-Carleton[7]	26.8	25.3	18.3	15.8
Prescott	27.6	25.9	17.3	14.2
Renfrew	30.9	29.1	17.5	15.9
Russell[8]	28.4	27.0	18.6	17.0
Stormont	29.5	27.3	18.1	15.5
ONTARIO[9]	26.6	25.3	19.0	16.9

1. Patricia Portion, which was listed separately in earlier years, was included in Kenora in 1971.

2. The District Municipality of Muskoka in 1971, formerly the District of Muskoka.

3. The Regional Municipality of Niagara in 1971, formerly Lincoln and Welland Counties.

4. Part of the population of Burlington, included in earlier years, is excluded in 1971.

5. Part of the population of Burlington, included in 1971, is excluded in 1966 and earlier years.

6. Data for the Municipality of Metropolitan Toronto were recorded separately from the Regional Municipality of York in 1971, but are combined with York in 1971 for consistency with earlier years.

7. Became a Regional Municipality in 1969, including Cumberland Township which is excluded for earlier years.

8. Excludes Cumberland Township in 1971; includes it for earlier years.

9. For full listing of divisions and subdivisions in 1971, see Appendix.

Source: Province of Ontario, Vital Statistics 1956, 1961, 1966 and 1971 (Toronto: Office of the Registrar General), Table 1.

TABLE 1.2

AGE SPECIFIC AND TOTAL FERTILITY RATES IN EDUCATION REGIONS OF ONTARIO, 1956, 1961, 1966 and 1971

County, District or Regional Area	Age of Women	1956	1961	1966	1971
		Rate per 1000 women of specified age			
Northwestern Region	15-19	86.27	98.62	71.56	60.01
	20-24	274.80	289.38	226.37	181.13
	25-29	228.89	234.10	199.24	165.96
	30-34	140.02	155.61	126.55	94.11
	35-39	88.01	83.25	69.59	39.29
	40-44	25.45	28.91	26.10	12.23
	45-49	3.97	2.58	1.92	0.15
	All ages	4237.05	4462.25	3606.65	2764.40
Kenora[1]	15-19	87.86	92.89	90.67	76.29
	20-24	220.06	227.83	243.50	221.18
	25-29	181.70	162.64	194.16	180.57
	30-34	94.36	115.07	143.69	117.20
	35-39	69.17	69.22	69.46	48.35
	40-44	18.93	23.74	29.84	18.18
	45-49	2.69	2.41	0.74	0.00
	All ages	3373.85	3469.00	3860.30	3308.85
Rainy River	15-19	95.79	110.19	70.05	67.18
	20-24	334.57	358.87	259.26	196.79
	25-29	247.15	258.81	158.54	160.54
	30-34	157.42	140.57	92.89	81.25
	35-39	101.62	80.23	62.15	50.77
	40-44	31.86	41.21	28.26	13.95
	45-49	6.84	4.41	1.32	1.45
	All ages	4876.25	4971.45	3362.35	2859.65
Thunder Bay	15-19	71.32	79.79	55.39	52.94
	20-24	253.64	265.41	179.27	164.81
	25-29	221.60	231.07	176.38	161.30
	30-34	137.57	152.58	99.52	86.92
	35-39	81.11	77.10	61.57	34.19
	40-44	21.59	23.49	20.17	10.08
	45-49	2.27	1.80	2.18	0.00
	All ages	3945.50	4156.20	2972.40	2551.20
Midnorthern Region	15-19	86.17	92.10	68.42	63.15
	20-24	288.48	288.73	202.64	183.62
	25-29	247.52	246.10	172.24	165.63
	30-34	166.12	163.27	106.69	86.07
	35-39	100.73	90.11	56.38	35.88
	40-44	33.63	32.57	20.32	12.01
	45-59	2.15	1.21	1.91	0.80
	All ages	4624.00	4570.45	3143.00	2556.42

Table 1.2 (cont'd)

County, District or Regional Area	Age of Women	1956	1961	1966	1971
		Rate per 1000 women of specified age			
Algoma	15-19	97.88	93.94	72.95	58.76
	20-24	293.00	289.37	209.10	167.33
	25-29	237.43	236.90	171.43	155.16
	30-34	165.47	157.23	107.03	73.85
	35-39	88.80	85.32	53.81	38.76
	40-44	31.88	29.60	17.71	11.18
	45-49	1.63	1.58	1.81	0.00
	All ages	4580.45	4469.70	3169.20	2525.20
Manitoulin	15-19	74.07	108.80	80.65	62.75
	20-24	302.63	296.70	200.00	191.05
	25-29	226.97	245.49	239.32	164.00
	30-34	212.01	178.81	169.42	104.00
	35-39	101.69	160.58	77.97	41.51
	40-44	39.09	42.25	46.22	25.93
	45-49	3.39	0.00	0.00	0.00
	All ages	4799.25	5163.15	4067.90	2946.20
Sudbury	15-19	81.17	89.82	64.84	65.73
	20-24	285.34	287.92	198.99	192.50
	25-29	253.84	252.52	168.19	171.81
	30-34	164.22	166.64	103.66	93.10
	35-39	107.20	89.95	56.92	33.78
	40-44	34.21	33.97	20.98	11.84
	45-49	2.35	1.05	2.56	1.33
	All ages	4641.65	4609.35	3080.70	2850.45

Northeastern Region	15-19	77.43	78.33	55.35	54.22
	20-24	286.62	306.87	196.42	175.97
	25-29	241.24	239.03	160.99	151.47
	30-34	168.62	154.05	104.92	81.28
	35-39	99.25	89.09	62.25	33.40
	40-44	38.26	31.26	21.61	11.01
	45-49	3.30	2.03	1.97	0.26
	All ages	5073.60	4503.30	3017.55	2538.05
Cochrane	15-19	75.04	80.53	63.01	66.87
	20-24	287.97	317.18	212.41	185.22
	25-29	255.26	245.75	176.59	153.38
	30-34	174.64	164.23	102.37	90.64
	35-39	108.18	95.22	69.15	33.27
	40-44	36.83	34.04	24.41	14.68
	45-49	3.44	2.30	1.77	0.41
	All ages	4706.80	4696.25	3248.55	2722.35

Table 1.2 (cont'd)

County, District or Regional Area	Age of Women	1956	1961	1966	1971
		Rate per 1000 women of specified age			
Muskoka[2]	15-19	73.41	77.24	50.86	53.47
	20-24	287.46	272.44	156.86	161.91
	25-29	209.61	194.07	114.52	141.94
	30-34	127.10	160.53	93.57	67.10
	35-39	89.91	60.44	58.46	28.22
	40-44	27.81	17.41	16.72	4.42
	45-49	2.72	0.00	0.00	0.00
	All ages	4090.10	3910.65	2454.95	2285.30
Nipissing	15-19	81.27	76.46	50.75	47.55
	20-24	277.98	298.70	184.07	170.47
	25-29	238.59	248.50	160.97	153.52
	30-34	178.34	159.96	113.27	80.48
	35-39	101.68	93.96	61.08	33.55
	40-44	44.78	36.98	20.79	9.75
	45-49	4.44	3.01	3.24	0.46
	All ages	4635.40	4587.85	2970.85	2478.90
Parry Sound	15-19	89.37	82.24	54.59	41.67
	20-24	312.32	320.16	221.71	191.30
	25-29	242.51	260.87	154.29	140.88
	30-34	168.06	131.17	97.14	84.62
	35-39	87.70	82.66	67.53	44.00
	40-44	39.59	26.29	23.11	8.11
	45-49	2.81	1.15	0.00	0.00
	All ages	4711.80	4722.70	3091.85	2552.90
Timiskaming	15-19	72.54	75.18	51.54	47.66
	20-24	283.94	306.79	187.50	164.84
	25-29	232.05	220.28	147.17	156.15
	30-34	165.85	131.65	107.03	69.80
	35-39	93.51	90.13	47.43	30.33
	40-44	38.24	29.49	18.25	12.39
	45-49	2.44	2.20	2.26	0.00
	All ages	4442.85	4278.60	2805.90	2405.85
Western Region	15-19	66.72	66.89	56.32	43.22
	20-24	232.13	250.61	178.45	149.10
	25-29	214.49	216.22	166.05	159.50
	30-34	137.97	133.35	95.50	76.95
	35-39	73.67	71.91	54.76	31.36
	40-44	22.92	23.02	16.25	7.77
	45-49	1.08	1.80	1.13	0.46
	All ages	3744.90	3819.00	2842.30	2341.80

Table 1.2 (cont'd)

County, District or Regional Area	Age of Women	1956	1961	1966	1971
		Rate per 1000 women of specified age			
Elgin	15-19	62.91	65.88	61.70	48.75
	20-24	222.90	259.99	172.27	167.24
	25-29	193.15	209.49	177.22	145.46
	30-34	111.48	110.26	99.40	67.94
	35-39	58.85	66.20	50.19	29.47
	40-44	15.98	17.81	13.97	4.41
	45-49	1.16	1.62	1.63	0.00
	All ages	3332.15	3656.25	2881.90	2316.35
Essex	15-19	63.02	52.99	59.80	46.32
	20-24	239.64	250.07	200.63	156.01
	25-29	215.43	209.38	179.63	164.54
	30-34	146.04	133.43	101.27	81.33
	35-39	75.58	77.69	59.76	35.59
	40-44	23.49	23.54	19.99	9.46
	45-49	1.21	2.28	1.03	0.42
	All ages	3822.05	3746.90	3110.55	2468.35
Huron	15-19	53.06	59.51	37.79	40.97
	20-24	259.21	291.13	184.59	173.78
	25-29	204.93	216.24	160.59	177.22
	30-34	140.88	143.69	100.30	78.68
	35-39	76.12	85.88	67.11	31.62
	40-44	29.47	32.84	18.69	14.49
	45-49	2.37	1.40	1.35	1.41
	All ages	3830.20	4153.45	2852.10	2590.85
Kent	15-19	75.68	85.26	67.80	45.91
	20-24	245.05	288.82	186.37	173.52
	25-29	231.39	230.74	161.05	158.17
	30-34	146.15	141.32	96.89	85.10
	35-39	82.62	82.34	53.90	34.16
	40-44	23.47	20.53	20.37	11.27
	45-49	0.44	2.43	0.77	0.34
	All ages	4024.00	4257.20	2935.75	2542.35
Lambton	15-19	69.08	71.92	54.03	41.33
	20-24	262.88	261.94	193.65	165.56
	25-29	242.48	236.68	150.00	161.98
	30-34	145.70	142.46	88.04	70.82
	35-39	75.33	71.33	49.51	30.51
	40-44	28.23	27.77	13.54	6.72
	45-49	2.29	1.15	1.32	0.28
	All ages	4129.95	4066.25	2755.40	2386.00

Table 1.2 (cont'd)

County, District or Regional Area	Age of Women	1956	1961	1966	1971
		Rate per 1000 women of specified age			
Middlesex	15-19	71.41	75.08	50.95	38.63
	20-24	201.51	224.16	150.05	124.51
	25-29	202.05	211.13	158.61	154.69
	30-34	127.46	130.02	90.69	73.99
	35-39	70.55	60.63	50.72	26.81
	40-44	20.28	20.54	12.16	5.80
	45-49	0.37	1.42	0.98	0.57
	All Ages	3468.15	3614.90	2570.80	2125.00
Midwestern Region	15-19	61.11	66.64	55.80	44.71
	20-24	227.90	243.92	187.38	148.82
	25-29	210.58	212.09	169.75	156.78
	30-34	138.15	137.48	103.82	81.25
	25-39	77.64	70.82	57.66	33.12
	40-44	23.99	23.64	18.60	8.69
	45-49	2.14	1.27	1.18	0.48
	All ages	3707.55	3779.30	2970.95	2369.25
Brant	15-19	60.77	69.58	60.33	47.29
	20-24	232.21	226.73	186.94	129.65
	25-29	196.06	207.00	174.22	133.55
	30-34	127.49	127.59	88.87	70.63
	35-39	67.00	58.55	54.95	25.68
	40-44	21.28	15.28	19.21	4.67
	45-49	2.21	1.15	1.11	0.34
	All ages	3535.10	3529.40	2928.15	2059.05
Bruce	15-19	67.47	78.47	31.15	43.48
	20-24	252.65	305.01	232.25	190.04
	25-29	224.55	241.45	162.82	171.54
	30-34	142.98	182.67	120.67	87.11
	35-39	110.58	98.42	73.69	32.60
	40-44	28.83	36.35	32.64	8.00
	45-49	1.74	4.31	1.63	0.79
	All ages	4144.00	4733.40	3274.25	2667.80
Grey	15-19	66.67	66.40	52.69	39.81
	20-24	240.34	248.33	198.04	157.71
	25-29	207.87	173.52	139.45	167.05
	30-34	127.44	122.61	98.15	84.83
	35-39	74.51	62.37	51.45	30.64
	40-44	30.83	20.90	17.93	10.72
	45-49	2.79	1.09	0.55	1.06
	All ages	3752.25	3476.10	2791.30	2459.10

Table 1.2 (cont'd)

County, District or Regional Area	Age of Women	1956	1961	1966	1971
		Rate per 1000 women of specified age			
Oxford	15-19	72.74	70.94	63.42	41.14
	20-24	256.31	272.96	182.76	153.77
	25-29	204.51	219.42	165.37	152.38
	30-34	143.47	128.58	95.44	75.86
	35-39	80.28	72.98	51.18	30.23
	40-44	22.29	19.94	17.83	8.99
	45-49	1.08	0.49	0.47	0.00
	All ages	3903.40	3926.55	2882.35	2311.85
Perth	15-19	52.66	71.85	44.78	39.48
	20-24	230.07	247.13	177.70	156.96
	25-29	207.41	208.56	173.86	162.09
	30-34	141.98	143.90	107.02	80.61
	35-39	80.56	70.10	56.73	36.42
	40-44	32.72	25.80	13.47	11.11
	45-49	1.34	0.61	1.13	0.57
	All ages	3733.70	3839.75	2873.45	2436.20
Waterloo	15-19	53.80	61.80	62.31	48.16
	20-24	212.00	228.78	187.70	147.56
	25-29	210.68	213.95	172.68	155.64
	30-34	136.53	136.68	109.80	86.95
	35-39	75.04	69.51	57.89	34.77
	40-44	18.58	26.74	17.89	7.58
	45-49	1.83	1.21	1.58	0.40
	All ages	3542.80	3693.35	3049.25	2405.30
Wellington	15-19	62.75	61.10	49.36	43.78
	20-24	214.35	245.86	174.80	144.55
	25-29	229.08	221.58	178.67	169.58
	30-34	151.41	144.19	103.76	76.39
	35-39	76.70	79.19	62.91	37.59
	40-44	25.68	23.03	18.18	12.44
	45-49	3.81	1.30	1.19	0.65
	All ages	3818.90	3881.25	2944.35	2424.90
Niagara Region	15-19	60.22	64.14	56.98	42.21
	20-24	219.06	230.03	174.52	133.20
	25-29	205.55	202.73	163.82	147.37
	30-34	132.77	124.28	95.79	71.23
	35-39	64.08	63.54	48.87	26.94
	40-44	19.19	18.47	14.21	6.18
	45-49	1.21	1.38	0.74	0.33
	All ages	3510.40	3522.85	2774.65	2137.30

Table 1.2 (cont'd)

County, District or Regional Area	Age of Women	1956	1961	1966	1971
		Rate per 1000 women of specified age			
Haldimand	15-19	53.33	89.66	56.84	47.77
	20-24	243.94	299.57	201.95	168.66
	25-29	243.72	226.11	169.17	154.68
	30-34	146.78	160.63	94.70	85.88
	35-39	71.00	73.99	64.59	29.07
	40-44	19.82	19.44	22.51	7.91
	45-49	0.00	1.28	0.00	2.34
	All ages	3892.95	4353.40	3048.80	2481.55
Niagara[3]	15-19	56.57	58.93	51.54	41.41
	20-24	225.73	231.52	177.51	142.85
	25-29	209.78	208.43	171.58	153.20
	30-34	132.60	126.09	94.15	73.81
	35-39	63.22	62.31	47.99	6.01
	40-44	20.56	17.66	15.76	6.01
	45-49	1.73	1.68	0.74	0.17
	All ages	3550.95	3533.10	2796.35	2231.00
Norfolk	15-19	74.45	78.56	64.52	52.47
	20-24	236.60	241.63	206.78	171.43
	25-29	200.26	190.26	136.80	142.34
	30-34	123.52	106.89	98.05	58.90
	35-39	71.38	71.43	50.07	24.50
	40-44	22.00	22.11	12.23	7.14
	45-49	0.77	1.40	2.17	0.63
	All ages	3644.90	3561.40	2853.10	2287.05
Wentworth	15-19	61.51	63.97	60.70	40.98
	20-24	209.79	222.91	166.75	119.65
	25-29	200.71	198.58	160.49	142.65
	30-34	133.12	122.70	92.82	69.49
	35-39	63.40	63.01	48.38	25.53
	40-44	17.68	18.62	12.77	6.08
	45-49	0.97	1.15	0.63	0.30
	All ages	3435.90	3454.70	2712.70	2023.40
Central Region	15-19	64.43	67.88	60.29	41.46
	20-24	200.71	216.93	159.53	125.94
	25-29	189.28	199.74	155.55	137.96
	30-34	124.65	126.98	97.41	77.61
	35-39	63.42	63.76	49.87	30.77
	40-44	17.64	18.28	14.53	6.87
	45-49	0.88	1.31	1.14	0.37
	All ages	3305.05	3474.40	2691.60	2104.90

Table 1.2 (cont'd)

County, District or Regional Area	Age of Women	1956	1961	1966	1971
		Rate per 1000 women of specified age			
Dufferin	15-19	69.72	51.93	61.60	48.39
	20-24	253.56	235.96	197.62	179.10
	25-29	226.51	203.80	148.42	177.47
	30-34	169.81	147.58	113.48	89.06
	35-39	84.59	80.51	71.13	29.83
	40-44	26.21	37.95	27.34	19.64
	45-49	2.30	4.29	2.02	0.00
	All ages	4163.50	3810.10	3108.05	2717.45
Durham	15-19	89.61	61.59	52.47	38.71
	20-24	246.68	266.53	176.43	157.01
	25-29	233.82	212.64	161.40	139.02
	30-34	157.51	134.53	97.27	63.43
	35-39	78.41	72.35	51.90	23.53
	40-44	29.01	16.93	17.56	10.22
	45-49	0.00	1.93	1.68	0.75
	All ages	4175.20	3832.50	2793.55	2163.33
Haliburton	15-19	96.65	77.84	20.35	57.83
	20-24	239.44	264.42	187.92	148.15
	25-29	192.98	165.32	175.44	176.74
	30-34	119.83	117.19	86.96	39.02
	35-39	74.07	65.45	75.22	8.33
	40-44	31.96	13.11	8.93	0.00
	45-49	0.00	0.00	0.00	0.00
	All ages	3774.65	3516.65	2774.10	2150.35
Halton	15-19	59.95	59.60	51.94	29.23
	20-24	242.34	262.61	186.81	147.86
	25-29	233.05	246.60	189.97	163.90
	30-34	151.69	145.76	109.70	81.18
	35-39	79.00	77.23	51.48	26.46
	40-44	24.64	22.48	15.85	6.46
	45-49	1.15	2.57	1.37	0.50
	All ages	3959.10	4084.25	3035.60	2277.95
Ontario	15-19	82.96	81.03	64.81	43.18
	20-24	251.47	259.93	185.89	146.49
	25-29	214.25	222.20	154.19	149.90
	30-34	132.47	126.03	92.67	70.14
	35-39	73.82	66.36	50.77	25.23
	40-44	22.07	20.26	16.58	6.24
	45-49	1.00	1.72	1.43	0.00
	All Ages	3890.20	3887.65	2831.70	2205.90

Table 1.2 (cont'd)

County, District or Regional Area	Age of Women	1956	1961	1966	1971
		Rate per 1000 women of specified age			
Peel	15-19	68.93	70.28	61.13	40.48
	20-24	251.39	252.18	178.37	149.80
	25-29	223.97	237.76	170.04	158.21
	30-34	153.05	152.14	100.50	75.56
	35-39	80.06	77.23	55.71	29.69
	40-44	17.89	19.79	15.68	6.98
	45-49	1.84	1.60	0.91	0.00
	All ages	3985.65	4054.90	2911.70	2303.60
Simcoe	15-19	64.97	73.45	56.62	45.39
	20-24	280.02	275.05	171.08	155.02
	35-29	225.77	231.84	149.22	162.70
	30-34	142.51	131.20	90.89	80.09
	35-39	76.70	83.33	50.42	31.28
	40-44	27.36	27.58	16.32	6.32
	45-49	1.91	2.94	1.95	0.61
	All ages	4096.20	4126.95	2682.50	2407.05
Victoria	15-19	57.59	61.82	61.08	39.51
	20-24	260.68	255.47	190.97	171.30
	25-29	196.59	255.52	169.59	132.24
	30-34	147.43	141.78	83.67	72.73
	35-39	65.87	93.89	55.90	29.76
	40-44	30.20	33.97	20.32	10.35
	45-49	1.21	0.00	2.11	1.01
	All ages	3797.85	4212.25	2918.20	2284.50
York[4] (includes Metropolitan Toronto)	15-19	61.99	66.86	60.95	42.11
	20-24	185.97	204.89	152.88	117.95
	25-29	180.57	190.85	152.12	130.61
	30-34	118.82	123.58	96.92	78.38
	35-39	59.40	59.91	48.81	31.99
	40-44	15.78	16.75	13.87	6.81
	45-49	0.74	1.07	1.04	0.39
	All ages	3116.35	3319.55	2632.95	2041.20
Eastern Region	15-19	74.72	74.28	57.49	46.15
	20-24	249.62	257.71	172.63	139.33
	25-29	208.18	218.52	156.56	146.11
	30-34	135.40	136.96	94.65	68.93
	35-39	75.43	72.56	51.23	29.70
	40-44	24.74	22.70	14.94	7.98
	45-49	1.43	1.75	2.55	0.50
	All ages	3847.60	3921.90	2750.25	2193.50

Table 1.2 (cont'd)

County, District or Regional Area	Age of Women	1956	1961	1966	1971
		Rate per 1000 women of specified age			
Frontenac	15-19	78.29	86.39	64.69	48.29
	20-24	288.86	241.44	150.24	117.21
	25-29	193.84	214.12	150.85	146.11
	30-34	140.30	136.77	91.72	75.54
	35-39	76.37	73.61	50.64	30.80
	40-44	25.05	25.29	12.68	7.16
	45-49	0.51	0.83	2.27	1.32
	All ages	3716.10	3892.25	2615.45	2132.15
Grenville	15-19	78.03	75.19	77.84	49.32
	20-24	258.49	236.71	182.09	138.18
	25-29	243.32	207.28	154.47	121.32
	30-34	157.89	146.14	100.49	51.91
	35-39	61.95	81.74	67.95	41.54
	40-44	23.11	15.74	24.08	11.77
	45-49	0.00	3.10	3.05	0.00
	All ages	4113.95	3829.50	3049.85	2070.25
Hastings	15-19	82.99	74.96	51.08	48.34
	20-24	280.32	294.22	131.05	150.59
	25-29	218.24	239.73	152.61	141.28
	30-34	132.40	152.88	90.38	64.41
	35-39	80.40	69.82	52.77	33.10
	40-44	27.39	24.18	14.88	8.58
	45-49	2.93	1.66	1.08	1.01
	All ages	4123.35	4287.25	2469.25	2236.55
Leeds	15-19	67.48	67.58	58.69	54.19
	20-24	215.55	232.14	186.53	152.26
	25-29	191.11	190.30	171.83	154.63
	30-34	128.28	127.32	101.06	75.62
	35-39	68.34	76.04	45.05	22.90
	40-44	25.50	17.44	11.73	7.02
	45-49	2.30	2.10	2.75	0.00
	All ages	3492.80	3564.60	2888.20	2333.10
Lennox & Addington	15-19	83.79	74.64	54.99	43.85
	20-24	255.63	262.52	204.61	172.97
	25-29	210.95	218.34	176.39	156.57
	30-34	136.75	123.03	90.52	67.08
	35-39	58.74	57.38	51.84	24.32
	40-44	17.94	20.17	26.57	13.51
	45-49	0.00	3.30	6.11	0.00
	All ages	3819.00	3796.00	3055.15	2391.50

Table 1.2 (cont'd)

County, District or Regional Area	Age of Women	1956	1961	1966	1971
		Rate per 1000 women of specified age			
Northumberland	15-19	68.41	76.60	57.62	39.27
	20-24	276.80	254.63	191.29	162.50
	25-29	204.19	210.34	138.73	139.92
	30-34	137.16	117.88	85.18	64.31
	35-39	73.84	78.15	50.98	22.66
	40-44	22.15	20.47	15.37	5.34
	45-49	0.93	0.00	3.03	0.00
	All ages	3917.40	3785.35	2711.00	2170.00
Peterborough	15-19	57.99	64.98	51.56	41.16
	20-24	232.21	237.58	165.93	131.15
	25-29	211.51	221.72	161.93	155.47
	30-34	134.16	135.24	99.78	68.24
	35-39	82.36	68.93	52.35	28.75
	40-44	24.59	23.36	13.31	6.46
	45-49	1.08	1.74	3.22	0.00
	All ages	3719.50	3767.75	2740.40	2156.15
Prince Edward	15-19	97.18	67.44	41.76	42.37
	20-24	284.13	322.46	241.38	154.84
	25-29	216.42	215.43	163.70	130.28
	30-34	121.41	132.90	113.27	76.00
	35-39	73.80	82.62	37.54	36.19
	40-44	25.41	30.10	17.00	12.84
	45-49	1.92	3.79	1.74	0.00
	All ages	4101.35	4273.70	3081.95	2262.60
Ottawa Valley Region	15-19	56.59	55.73	42.05	35.48
	20-24	227.46	240.48	163.04	120.41
	25-29	215.09	226.34	153.52	139.05
	30-34	149.20	145.19	103.38	74.28
	35-39	87.59	76.22	56.80	31.95
	40-44	30.32	25.66	18.45	8.85
	45-49	2.40	1.57	1.15	0.48
	All ages	3843.25	3855.95	2691.95	2052.50
Dundas	15-19	88.38	63.86	84.45	63.10
	20-24	268.04	245.41	198.50	151.72
	25-29	198.43	188.64	108.64	143.40
	30-34	150.94	173.54	96.02	58.14
	35-39	119.76	67.40	50.44	35.29
	40-44	26.00	45.45	16.60	10.87
	45-49	2.30	4.21	0.00	0.00
	All ages	4269.25	3942.55	2773.25	2312.60

Table 1.2 (cont'd)

County, District or Regional Area	Age of Women	1956	1961	1966	1971
		Rate per 1000 women of specified age			
Glengarry	15-19	45.12	46.74	49.55	25.77
	20-24	291.56	283.02	218.06	147.97
	25-29	256.41	242.74	206.43	184.62
	30-34	204.04	180.85	136.61	70.59
	35-39	122.37	114.49	98.62	46.15
	40-44	55.67	39.77	44.18	26.67
	45-49	4.69	2.02	0.00	1.98
	All ages	4899.30	4548.15	3767.25	2518.75
Lanark	15-19	72.18	58.19	51.79	46.08
	20-24	223.62	248.14	157.11	144.97
	25-29	198.81	186.34	133.40	124.39
	30-34	139.02	133.58	98.16	65.39
	35-39	82.85	78.18	56.24	26.87
	40-44	24.45	22.65	19.42	7.62
	45-49	0.97	5.16	3.48	0.00
	All ages	3709.50	3661.20	2598.00	2076.60
Ottawa-Carleton[5]	15-19	48.93	48.71	39.50	32.13
	20-24	201.63	217.06	147.24	107.12
	25-29	204.23	218.45	153.07	135.31
	30-34	136.01	136.94	102.61	75.77
	35-39	75.43	64.81	54.30	31.74
	40-44	25.26	21.73	14.61	7.42
	45-49	1.46	0.82	0.78	0.20
	All ages	3464.55	3542.60	2560.55	1948.45
Prescott	15-19	44.79	43.85	24.22	38.10
	20-24	260.34	251.63	201.37	147.09
	25-29	275.96	245.98	155.20	150.84
	30-34	179.05	178.16	131.44	45.71
	35-39	102.86	118.75	55.14	39.74
	40-44	44.22	47.81	27.45	5.71
	45-49	6.66	1.55	2.82	0.00
	All ages	4569.40	4438.65	2988.20	2135.95
Renfrew	15-19	83.77	91.08	47.37	44.06
	20-24	284.11	307.57	202.96	152.06
	25-29	219.44	256.66	158.70	155.56
	30-34	172.87	152.32	97.35	79.20
	35-39	107.47	86.69	56.30	28.95
	40-44	42.62	26.90	23.75	11.77
	45-49	2.26	1.48	1.29	2.00
	All ages	4562.70	4613.50	2938.60	2368.00

Table 1.2 (cont'd)

County, District or Regional Area	Age of Women	1956	1961	1966	1971
		Rate per 1000 women of specified age			
Russell[6]	15-19	32.46	38.62	20.25	35.71
	20-24	253.76	306.23	224.81	168.33
	25-29	296.08	274.40	171.85	160.71
	30-34	205.83	180.51	123.64	97.56
	35-39	146.95	123.18	88.35	35.62
	40-44	52.52	49.41	28.93	12.66
	45-49	9.22	0.00	0.00	0.00
	All ages	4984.10	4861.72	3289.15	2552.95
Stormont	15-19	55.56	60.11	49.14	33.68
	20-24	242.52	265.35	180.39	152.10
	25-29	227.27	235.23	149.42	136.51
	30-34	169.86	157.89	97.94	70.48
	35-39	99.66	100.65	60.76	32.94
	40-44	32.30	28.38	28.90	12.47
	45-49	4.81	3.76	3.80	1.13
	All ages	4159.90	4256.85	2851.75	2196.55
ONTARIO[7]	15-19	66.51	69.09	57.16	43.88
	20-24	225.67	239.78	171.39	137.15
	25-29	205.65	211.52	160.28	145.74
	30-34	135.55	134.15	98.76	77.31
	35-39	73.08	69.74	52.76	31.19
	40-44	22.50	21.85	16.17	7.78
	45-49	1.49	1.51	1.27	0.41
	All ages	3652.15	3738.20	2788.95	2217.30

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1. Births of Patricia Portion are not included for 1956, 1961 and 1966 fertility rates for Kenora. They are included in calculation of Kenora rates for 1971 and in all years for the Northwestern Region.

2. District of Muskoka had become the District Municipality of Muskoka by 1971.

3. Data for Lincoln and Welland, which had become the Regional Municipality of Niagara by 1971, are combined in earlier years for the purposes of this table.

4. Data for Metropolitan Toronto, which are available separately from those for the Regional Municipality of York in 1971, have been combined in this table to be consistent with earlier years.

Table 1.2 (cont'd)

5. Became a Regional Municipality in 1969, excluding Cumberland Township which is included in earlier years.

6. Excludes Cumberland Township in 1971; includes it in earlier years.

7. For full listing of changes made by 1971, see Appendix.

Source: Computed from data on births obtained from Statistics Canada and the Office of the Registrar General for Ontario. Census data were used as the base population from which the rates were computed.

TABLE 1.3

PERCENTAGE DISTRIBUTION OF BIRTHS BY AGE OF MOTHER FOR EDUCATION REGIONS, 1956, 1961, 1966, 1971

Region/Year	All Ages	Age of Mother						
		15-19	20-24	25-29	30-34	35-39	40-44	45-49
Northwestern								
1956	100	9.77	30.56	27.62	18.54	10.68	2.56	0.27
1961	100	11.87	30.91	25.91	17.76	10.28	3.04	0.23
1966	100	14.54	31.99	24.96	15.38	9.32	3.57	0.24
1971	100	15.02	37.91	26.93	13.12	5.29	1.71	0.02
Midnorthern								
1956	100	9.64	30.85	27.49	19.30	9.83	2.75	0.14
1961	100	10.69	31.37	27.18	17.96	9.88	2.83	0.09
1966	100	14.51	32.53	25.57	15.80	8.40	2.97	0.22
1971	100	15.44	38.05	27.75	12.19	4.90	1.57	0.10
Northeastern								
1956	100	10.50	30.61	25.57	19.07	10.37	3.62	0.26
1961	100	10.88	33.84	25.53	16.50	9.99	3.08	0.18
1966	100	14.01	31.53	25.17	15.94	9.65	3.43	0.27
1971	100	15.80	37.67	26.57	13.10	5.17	1.65	0.04
Western								
1956	100	8.55	28.78	29.43	20.80	9.66	2.67	0.11
1961	100	9.88	31.37	26.80	18.22	10.64	2.89	0.20
1966	100	13.36	33.39	26.26	14.74	9.19	2.89	0.17
1971	100	11.80	37.43	31.63	12.80	4.93	1.33	0.08
Midwestern								
1956	100	8.11	28.70	29.11	20.22	10.55	3.06	0.25
1961	100	10.32	29.99	26.52	19.34	10.55	3.12	0.16
1966	100	13.17	33.65	25.10	15.36	9.43	3.11	0.18
1971	100	12.23	37.07	30.84	13.09	5.24	1.44	0.09
Niagara								
1956	100	7.16	28.54	30.79	22.03	8.96	2.39	0.13
1961	100	9.53	29.53	28.07	19.43	10.75	2.52	0.17
1966	100	13.25	32.82	26.35	15.71	9.00	2.76	0.11
1971	100	12.79	35.71	31.95	13.14	5.09	1.25	0.07
Central								
1956	100	6.88	27.84	31.31	21.90	9.56	2.42	0.09
1961	100	8.27	28.39	29.85	20.52	10.42	2.40	0.15
1966	100	12.04	30.24	27.71	17.77	9.40	2.67	0.17
1971	100	10.27	34.45	32.66	15.39	5.87	1.29	0.07

Table 1.3 (cont'd)

Region/Year	All Ages	Age of Mother						
		15-19	20-24	25-29	30-34	35-39	40-44	45-49
Eastern								
1956	100	9.58	30.56	27.32	19.39	10.03	2.98	0.14
1961	100	10.87	30.97	26.81	18.06	10.21	2.89	0.19
1966	100	14.86	32.36	25.28	15.35	8.99	2.74	0.42
1971	100	14.30	36.50	29.88	12.41	5.35	1.46	0.10
Ottawa Valley								
1956	100	7.29	28.18	27.49	21.49	11.69	3.62	0.24
1961	100	8.31	30.45	28.03	18.91	10.89	3.23	0.18
1966	100	10.84	32.43	26.01	17.12	9.94	3.47	0.19
1971	100	11.21	34.66	32.33	14.13	5.90	1.67	0.10
ONTARIO								
1956	100	7.93	28.77	29.46	20.98	9.94	2.76	0.16
1961	100	9.38	29.93	28.07	19.26	10.47	2.74	0.17
1966	100	12.76	31.76	26.55	16.52	9.32	2.90	0.19
1971	100	11.85	35.70	31.40	14.01	5.49	1.39	0.08

Source: Computed from data on births by age of mother obtained from Statistics Canada and the Office of the Registrar General for Ontario. Census data were used as the base population from which the rates were computed.

TABLE 1.4

ILLEGITIMATE RATE PER 1000 LIVE BIRTHS* IN EDUCATION REGIONS OF ONTARIO, 1956, 1961, 1966 and 1971

County, District or Regional Area	1956	1961	1966	1971
Northwestern Region	38.8	51.1	90.9	112.2
Kenora[1]	61.8	85.6	133.5	149.4
Rainy River	28.4	51.9	88.0	107.4
Thunder Bay	34.6	38.5	71.6	88.4
Midnorthern Region	35.1	32.6	59.6	63.7
Algoma	43.2	40.5	67.2	77.9
Manitoulin	115.5	114.4	125.0	176.8
Sudbury	26.1	28.0	50.5	50.6
Northeastern Region	36.7	33.4	60.1	71.8
Cochrane	32.7	25.7	46.2	78.9
Muskoka[2]	36.1	63.3	88.6	75.6
Nipissing	45.2	32.8	64.6	67.3
Parry Sound	51.9	49.9	79.5	61.7
Timiskaming	25.3	29.6	63.2	64.3
Western Region	29.5	33.5	57.3	58.0
Elgin	30.4	34.0	49.2	48.6
Essex	22.2	26.8	48.0	51.5
Huron	15.1	18.5	25.5	43.5
Kent	32.6	60.6	89.1	73.5
Lambton	25.1	40.6	42.6	53.0
Middlesex	47.1	42.3	69.7	65.9
Midwestern Region	23.6	27.7	45.3	49.0
Brant	43.7	40.5	61.0	62.2
Bruce	23.5	45.1	44.4	70.4
Grey	21.4	25.0	51.7	50.7
Oxford	18.1	22.3	35.2	48.2
Perth	16.5	23.7	31.7	34.0
Waterloo	23.2	24.4	44.2	47.7
Wellington	15.3	21.6	45.9	40.7
Niagara Region	25.9	32.6	60.3	54.7
Haldimand	22.7	34.9	63.8	47.9
Norfolk	30.8	40.6	52.0	54.4
Niagara[3]				52.8
Lincoln	25.7	30.1	51.0	
Welland	21.0	28.1	43.6	
Wentworth[4]	27.8	34.3	71.7	56.2

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Table 1.4 (cont'd)

County, District or Regional Area	1956	1961	1966	1971
Central Region	32.5	36.9	70.8	67.8
Dufferin	-	31.5	24.5	61.0
Durham	21.9	14.4	29.4	48.0
Haliburton	-	22.9	39.6	89.3
Halton	15.1	19.6	40.2	38.6
Ontario	21.2	25.0	44.6	57.8
Peel	21.9	32.4	59.4	50.4
Simcoe	30.8	32.2	68.8	78.0
Victoria	34.9	41.5	77.1	51.5
York[5] (includes Toronto)	35.5	40.2	77.6	73.3
Eastern Region	31.1	33.5	57.8	64.6
Frontenac	32.1	32.1	64.4	66.8
Grenville	38.0	41.2	78.2	85.4
Hastings	27.7	27.4	54.1	66.8
Leeds	32.3	42.4	52.1	56.1
Lennox and Addington	42.1	31.4	34.9	52.8
Northumberland	29.7	27.9	64.1	59.0
Peterborough	26.5	43.6	63.5	70.8
Prince Edward	29.4	21.4	28.6	69.3
Ottawa Valley Region	30.3	31.9	66.1	71.2
Dundas	43.1	45.1	51.0	49.6
Glengarry	23.4	26.1	38.6	19.2
Lanark	24.9	29.1	54.3	101.3
Ottawa-Carleton[6]	34.3	34.2	77.5	77.9
Prescott	22.0	24.1	38.2	50.4
Renfrew	22.8	28.3	48.5	56.4
Russell[7]	18.6	21.3	20.9	43.0
Stormont	27.6	24.7	60.2	60.1
ONTARIO[8]	30.8	34.6	64.2	65.1

1. Includes Kenora Portion throughout.

2. District of Muskoka formed into the District Municipality of Muskoka in 1971.

3. By 1971 Lincoln and Welland were merged into the Regional Municipality of Niagara.

4. Part of the population of Burlington, excluded in earlier years, is included in 1971.

Table 1.4 (cont'd)

5. Includes the Municipality of Metropolitan Toronto with the Regional Municipality of York in 1971 in order that data may be consistent with data for York County in earlier years.

6. Became a Regional Municipality in 1969, including Cumberland Township which is excluded for earlier years.

7. Excludes Cumberland Township which is included for years prior to 1971.

8. For full listing of changes made by 1971, see Appendix.

* Tables for illegitimacy by age of mother were also computed but are not included here due to their length. Also, as indicated in the discussion on page 18, some categories included small numbers of cases.

Source: Computed from data obtained from Statistics Canada and the Office of the Registrar General for Ontario.

TABLE 1.5

FERTILITY RATES FOR WOMEN 15-49 BY BIRTH ORDER FOR EDUCATION REGIONS OF ONTARIO, 1971

County, District or Regional Area	Order of Birth *											
	Total		First		Second		Third		Fourth		Fifth or more	
	Number	Rate	Number	Rate	Number	Rate	Number	Rate	Number	Rate	Number	Rate
Northwestern Region												
Kenora[1]	1253	104.11	357	29.66	321	26.67	205	17.03	137	11.38	233	19.36
Rainy River	484	86.58	179	32.02	122	21.82	67	11.99	45	8.05	71	12.70
Thunderbay	2645	76.93	1021	29.70	779	22.66	446	12.97	206	5.99	193	5.61
Midnorthern Region												
Algoma	2292	78.45	792	27.11	658	22.52	398	13.62	226	7.74	218	7.46
Manitoulin	181	84.58	53	24.77	44	20.56	29	13.55	15	7.01	40	18.69
Sudbury	4420	91.53	1736	35.95	1260	26.09	676	14.00	357	7.39	391	8.10
Northeastern Region												
Cochrane	1900	85.80	689	31.11	542	24.48	280	12.64	137	6.19	252	11.38
Muskoka[2]	462	66.24	204	29.25	119	17.06	71	10.18	37	5.30	31	4.44
Nipissing	1395	74.32	500	26.64	386	20.56	219	11.67	134	7.14	156	8.31
Parry Sound	453	71.90	148	23.49	138	21.90	68	10.79	41	6.15	58	9.21
Timiskaming	746	71.80	274	26.37	198	19.06	122	11.74	64	6.16	88	8.47
Western Region												
Elgin	1069	71.24	404	26.92	340	22.66	165	11.00	94	6.26	66	4.40
Essex	5531	74.42	2145	28.86	1642	22.09	888	11.95	410	5.52	446	6.00
Huron	804	73.56	297	27.17	210	19.21	139	12.72	76	6.95	82	7.50
Kent	1795	76.73	650	27.78	510	21.80	311	13.29	150	6.41	174	7.44
Lambton	1924	70.33	732	26.76	590	21.57	315	11.52	142	5.19	145	5.30
Middlesex	4865	67.73	1997	27.80	1533	21.34	769	10.71	329	4.58	237	3.30

Table 1.5 (cont'd)

County, District or Regional Area	Order of Birth*											
	Total		First		Second		Third		Fourth		Fifth or more	
	Number	Rate	Number	Rate	Number	Rate	Number	Rate	Number	Rate	Number	Rate
Midwestern Region												
Brant	1412	62.44	569	25.16	441	19.50	200	8.84	109	4.82	93	4.11
Bruce	724	76.13	268	28.18	196	20.61	126	13.25	64	6.73	70	7.36
Grey	987	69.39	361	25.38	278	19.54	172	12.09	76	5.34	100	7.03
Oxford	1246	68.26	474	25.97	328	17.97	233	12.76	93	5.09	118	6.46
Perth	999	71.18	352	25.08	316	22.52	167	11.90	88	6.27	76	5.42
Waterloo	4963	77.34	2072	32.29	1530	23.84	728	11.35	351	5.47	282	4.40
Wellington	1913	75.03	754	29.57	566	22.20	302	11.85	144	5.65	147	5.77
Niagara Region												
Haldimand	522	73.32	183	25.70	153	21.49	80	11.24	47	6.60	59	8.29
Niagara[3]	5471	64.99	2115	25.12	1732	20.57	876	10.41	404	4.80	344	4.09
Norfolk	846	68.47	331	26.79	247	19.99	134	10.85	61	4.94	73	5.91
Wentworth	6077	60.77	2510	25.10	1981	19.81	923	9.23	385	3.85	278	2.78
Central Region												
Dufferin	376	80.86	125	26.88	123	26.45	73	15.70	32	6.88	23	4.95
Durham	686	63.05	245	22.52	220	20.22	115	10.57	58	5.33	48	4.41
Haliburton	112	61.04	49	26.70	36	19.62	16	8.72	7	3.82	4	2.18
Halton	3237	66.46	1258	25.83	1103	22.65	512	10.51	218	4.48	146	3.00
Ontario	3251	66.96	1270	26.16	1068	22.00	532	10.96	206	4.24	175	3.60
Peel	5019	73.81	1998	29.39	1746	25.68	820	12.06	292	4.29	163	2.40
Simcoe	2846	72.70	1082	27.64	839	21.43	486	12.42	226	5.77	213	5.44
Victoria	466	64.99	173	24.13	133	18.55	76	10.60	45	6.28	39	5.44
York[4] (includes Metropolitan Toronto)	37086	62.45	17305	29.14	11889	20.02	5396	9.09	2073	3.49	1423	2.40

Table 1.5 (cont'd)

County, District or Regional Area	Order of Birth*											
	Total		First		Second		Third		Fourth		Fifth or more	
	Number	Rate	Number	Rate	Number	Rate	Number	Rate	Number	Rate	Number	Rate
Eastern Region												
Frontenac	1735	67.68	737	28.75	507	19.78	275	10.73	117	4.56	99	3.86
Grenville	328	61.19	122	22.76	109	20.34	51	9.52	20	3.73	26	4.85
Hastings	1524	65.59	614	26.43	415	17.86	232	9.99	120	5.16	143	6.15
Leeds	802	70.35	341	29.91	234	20.53	112	9.83	56	4.91	59	5.18
Lennox & Addington	454	72.47	160	25.54	137	21.87	79	12.61	38	6.07	40	6.38
Northumberland	661	62.77	238	22.60	202	19.18	119	11.30	55	5.22	47	4.46
Peterborough	1327	63.51	508	24.31	413	19.77	212	10.15	93	4.45	101	4.83
Prince Edward	274	62.20	87	19.75	90	20.43	36	8.17	24	5.45	37	8.40
Ottawa Valley Region												
Dundas	262	69.77	101	26.90	77	20.51	31	8.26	25	6.66	28	7.46
Glengarry	261	68.50	91	23.89	67	17.59	37	9.71	26	6.82	40	10.50
Lanark	601	64.00	250	26.62	183	19.49	88	9.37	44	4.69	36	3.83
Ottawa-Carleton[5]	7419	60.26	3276	26.61	2194	17.82	1101	8.94	486	3.95	362	2.94
Prescott	396	63.56	149	23.92	118	18.94	52	8.35	23	3.69	54	8.67
Renfrew	1435	68.89	516	24.77	401	19.25	240	11.52	125	6.00	153	7.35
Russell	279	78.15	101	28.29	68	19.05	48	13.45	21	5.88	41	11.48
Stormont	948	64.87	420	28.74	249	17.04	126	8.62	79	5.41	74	5.06
ONTARIO[6]	130395	68.42	52793	27.70	39521	20.74	20186		9249	4.85	8646	4.54

* Order of birth refers to the sequence of childbearing, i.e. a first order birth represents the birth of a first baby, a second order birth is the birth of a second baby, and so on.

Table 1.5 (cont'd)

1. Includes Patricia Portion.
2. The District Municipality of Muskoka.
3. Includes former counties of Lincoln and Welland in new Regional Municipality of Niagara.
4. The Regional Municipality of York and the Municipality of Metropolitan Toronto, combined.
5. Regional Municipality of Ottawa-Carleton (includes Cumberland Township).
6. See Appendix for listing of census divisions and subdivision to which 1971 data relate.

Source: Computed from data supplied by Statistics Canada and the Office of the Registrar General of Ontario. Rates based on 1971 Census data on population.

TABLE 1.6

NUMBER AND RATE OF MARRIAGES IN CANADA AND ONTARIO SINCE 1946

	Canada		Ontario	
Year	Marriages	Rate	Marriages	Rate
1946	137398	10.9	46073	11.3
1947	130400	10.1	44056	10.5
1948	126118	9.6	43242	10.1
1949	124087	9.2	43304	9.9
1950	125083	9.1	43744	9.8
1951	128408	9.2	45198	9.8
1952	128474	8.9	45251	9.5
1953	131034	8.8	45954	9.3
1954	128629	8.4	45028	8.8
1955	128029	8.2	44634	8.5
1956	132713	8.3	46282	8.6
1957	133186	8.0	46780	8.3
1958	131525	7.7	46894	8.1
1959	132474	7.6	46598	7.8
1960	130338	7.3	45855	7.5
1961	128475	7.0	44434	7.1
1962	129381	7.0	44454	7.0
1963	131111	6.9	45306	7.0
1964	138135	7.2	48501	7.4
1965	145519	7.4	51274	7.6
1966	155596	7.8	54571	7.8
1967	165879	8.1	58377	8.2
1968	171766	8.3	62109	8.5
1969	182183	8.7	67150	9.0
1970	188428	8.8	68874	9.0
1971	191324	8.9	69590	9.0
1972	200470	9.2	72278	9.2
1973	199064	9.0	72371	9.1

Source: Dominion Bureau of Statistics, Nuptiality 1950-1964 (Ottawa: Queen's Printer, 1967) for the years to 1964; and annual Nuptiality reports for the years 1965 through 1968 (Ottawa: Queen's Printer); Ontario, Ministry of Treasury, Economics and Intergovernmental Affairs, Ontario Statistics 1975, Vol. 1, Social Series (Toronto: Ontario Statistical Centre, 1975), Table 4.5, for years 1969 to 1973.

TABLE 1.7

DIVORCES AND PARTY TO WHOM DECREE WAS GRANTED IN ONTARIO SINCE 1945

Year	Total Divorces	Granted to:			
		Husbands		Wives	
		no.	%	no.	%
1945	1966	894	45.5	1072	54.5
1946	2703	1300	48.1	1403	51.9
1947	3524	1588	45.1	1936	54.9
1948	3204	1256	39.2	1948	60.8
1949	2516	985	39.1	1531	60.9
1950	2241	895	39.9	1346	60.1
1955	2542	1054	41.5	1488	58.5
1960	2999	1263	42.1	1736	57.9
1965	4087	1852	45.3	2235	54.7
1966	4101	1817	44.3	2284	55.7
1967	4350	1869	43.0	2481	57.0
1968	4443	1822	41.0	2621	59.0
1969	11843	4619	39.0	7224	61.0
1970	12433	4520	36.4	7913	63.6
1971	12675	4726	37.3	7949	62.7
1972	12990	4737	36.5	8253	63.5
1973	13809	5124	37.1	8685	62.9
1974	14923	5608	37.6	9315	62.4

Source: Province of Ontario, Vital Statistics 1968 and 1971 (Toronto: Office of the Registrar General).

TABLE 1.8

DIVORCE RATE PER 1000 MARRIED FEMALES IN ONTARIO, 1951-1971

Year	Married Women	Divorces	Rate per 1000
1951	1115180	2110	1.89
1956	1298609	2501	1.93
1961	1469672	2747	1.87
1966	1610518	4101	2.55
1971	1824635	12675*	6.97*

* The increase in the number of divorces and the rate of divorce reflects the changes in divorce legislation.

Source: Divorce data from Province of Ontario, Vital Statistics 1971 (Toronto: Office of the Registrar General); data for married women used as the base for the rates were from the Censuses of Canada.

TABLE 1.9

AGE SPECIFIC MALE FIRST MARRIAGE RATES* FOR ONTARIO, 1961, 1966 AND 1971

Age	Year		
	1961[a]	1966[a]	1971[b]
15-19	17.31	17.66	15.81
20-24	165.31	171.61	160.87
25-29	182.42	213.27	186.97
30-34	108.66	125.01	116.81
35-39	68.31	74.01	64.75
40-44	49.23	51.61	34.89
45-49	36.43	43.31	23.55
50-54	30.88	33.96	18.64
55-59	26.40	32.06	12.00
60-64	23.56	23.36	7.94
65-69	18.84	17.73	6.78
70+	8.05	3.34	2.19

* Number of marriages to single persons of a given age-sex group per thousand single persons in that age-sex group.

Source: (a) Betty Macleod, Carol Ivison and N. Bidani, Patterns and Trends in Ontario Population (Toronto: Ontario Institute for Studies in Education, 1972), pp. 115-116, 118-119.

(b) Based on Statistics Canada, 1971 Census of Canada, Marital Status by Age Groups, Bulletin 1.4-2 (Ottawa: Queen's Printer, 1973), Cat. 92-730, Table 2, and Province of Ontario, Vital Statistics 1971 (Toronto: Office of the Registrar General), Table 14.

TABLE 1.10

AGE SPECIFIC FEMALE FIRST MARRIAGE RATES* FOR ONTARIO, 1961, 1966 AND 1971

Age	Year		
	1961[a]	1966[a]	1971[b]
15-19	77.54	69.07	61.41
20-24	256.79	243.42	225.66
25-29	179.19	182.83	158.86
30-34	104.16	103.29	90.49
35-39	61.18	64.30	48.39
40-44	39.77	42.81	31.13
45-49	28.44	28.94	17.15
50-54	16.68	19.35	13.32
55-59	13.27	12.92	7.09
60-64	8.33	7.71	5.04
65-69	4.55	5.59	2.68
70-74	2.82	2.16	1.05
75+	0.65	0.61	0.41

* Number of marriages to single persons of a given age-sex group per thousand single persons in that age-sex group.

Source: (a) Betty Macleod, Carol Ivison and N. Bidani, Patterns and Trends in Ontario Population (Toronto: Ontario Institute for Studies in Education, 1972), pp. 115-116, 118-119.

(b) Based on Statistics Canada, 1971 Census of Canada, Marital Status by Age Groups, Bulletin 1.4-2 (Ottawa: Queen's Printer, 1973), Cat. 92-730, Table 2, and Province of Ontario, Vital Statistics 1971 (Toronto: Office of the Registrar General), Table 15.

TABLE 1.11

PERCENTAGE DISTRIBUTION OF BRIDES & GROOMS MARRYING IN ONTARIO BY AGE, 1956, 1961, 1966 AND 1971

Year		Age Group					Total
		15-19	20-24	25-29	30-34	35+	
1956							
	Brides Total	30.07	39.60	14.10	6.07	10.16	100.00
	1st Marriage	33.26	43.28	14.05	4.99	4.42	100.00
	Grooms Total	7.06	44.35	25.92	9.46	13.21	100.00
	1st Marriage	7.76	48.60	27.52	9.03	7.09	100.00
1961							
	Brides Total	33.55	39.73	11.00	5.16	10.36	100.00
	1st Marriage	37.47	43.69	10.75	3.99	4.10	100.00
	Grooms Total	8.54	45.99	23.14	8.84	13.49	100.00
	1st Marriage	9.47	50.79	24.59	8.36	6.79	100.00
1966							
	Brides Total	33.95	43.39	9.84	3.67	9.15	100.00
	1st Marriage	37.66	47.34	9.37	2.62	3.01	100.00
	Grooms Total	9.72	50.04	21.08	7.08	12.08	100.00
	1st Marriage	10.77	55.18	22.03	6.42	5.60	100.00
1971							
	Brides Total	28.30	45. 6	11. 3	4. 3	10. 5	100.00
	1st Marriage	32.78	51.45	10.35	2.75	2.67	100.00
	Grooms Total	8.10	50.80	20.50	6.80	13.80	100.00
	1st Marriage	9.34	58.29	21.70	5.64	5.03	100.00

Source: Computed from data in Province of Ontario, Vital Statistics, 1956, 1961, 1966 and 1971 (Toronto: Office of the Registrar General).

TABLE 1.12

CRUDE AND GENERAL MARRIAGE RATES IN EDUCATION REGIONS IN ONTARIO, 1971

County, District or Regional Area	Crude Marriage Rate	General Marriage Rate (based on population 15 years of age and older)	General Marriage Rate (based on unmarried population 15 years of age and older)*
Northwestern Region	8.56	12.43	36.22
Kenora[1]	7.89	12.14	37.07
Rainy River	9.05	13.28	39.86
Thunder Bay	8.71	12.38	35.35
Midnorthern Region	9.48	14.24	43.26
Algoma	8.82	13.17	39.66
Manitoulin	9.70	14.52	37.00
Sudbury	9.86	14.89	45.98
Northeastern Region	9.10	13.42	38.94
Cochrane	8.31	12.63	36.65
Muskoka[2]	9.86	13.47	40.03
Nipissing	9.67	14.64	42.48
Parry Sound	9.13	12.75	37.20
Timiskaming	9.23	13.44	38.08
Western Region	8.95	12.62	37.85
Elgin	9.07	12.57	37.18
Essex	9.29	13.15	39.40
Huron	8.42	11.98	35.54
Kent	8.67	12.37	37.31
Lambton	8.82	12.60	39.14
Middlesex	8.80	12.28	36.49
Midwestern Region	8.88	12.49	37.90
Brant	9.00	12.54	37.93
Bruce	8.91	12.53	36.27
Grey	8.39	11.58	34.57
Oxford	8.90	12.49	37.63
Perth	9.08	12.73	37.06
Waterloo	9.37	13.27	41.61
Wellington	7.77	11.02	33.09
Niagara Region	8.71	12.15	37.21
Haldimand	8.54	12.28	37.20
Niagara[3]	8.49	11.98	37.36
Norfolk	8.61	12.06	37.24
Wentworth	8.92	12.29	37.09

Table 1.12 (cont'd)

County, District or Regional Area	Crude Marriage Rate	General Marriage Rate (based on population 15 years of age and older)	General Marriage Rate (based on unmarried population 15 years of age and older)*
Central Region	9.08	12.53	37.59
Dufferin	6.70	9.66	31.07
Durham	8.72	12.58	40.14
Haliburton	8.26	11.23	37.31
Halton	7.29	10.80	39.21
Ontario	7.20	10.58	36.00
Peel	6.02	9.08	34.73
Simcoe	8.90	12.61	36.97
Victoria	8.47	11.59	34.94
York[4]	9.81	13.21	37.91
Eastern Region	9.10	12.77	37.59
Frontenac	10.08	13.99	39.30
Grenville	7.90	11.14	33.77
Hastings	9.96	14.21	42.96
Leeds	8.88	12.30	35.83
Lennox & Addington	7.09	10.20	31.90
Northumberland	7.77	10.91	32.79
Peterborough	9.24	12.84	37.47
Prince Edward	7.46	10.43	31.24
Ottawa Valley Region	9.32	13.13	35.71
Dundas	9.28	13.09	39.71
Glengarry	9.52	13.73	35.74
Lanark	9.75	13.43	34.59
Ottawa-Carleton[5]	9.13	12.71	34.28
Prescott	10.46	15.39	40.73
Renfrew	8.59	12.58	35.87
Russell	7.80	11.77	31.75
Stormont	11.40	16.27	48.81
ONTARIO[6]	9.03	12.67	37.64

* Assumes all widowed and divorced persons are over 15 years of age.

1. Includes Patricia Portion.
2. District Municipality of Muskoka, formerly the District of Muskoka.
3. Regional Municipality of Niagara, formerly the Counties of Lincoln and Welland.
4. Combines the Municipality of Metropolitan Toronto and the Regional Municipality of York.
5. The Regional Municipality of Ottawa-Carleton, formerly Carleton County. Cumberland Township, formerly in Russell County, is included in Ottawa-Carleton.
6. See Appendix for listing of census divisions and subdivisions to which 1971 data relate.

Source: Computed from data on marriages in Province of Ontario, Vital Statistics 1971 (Toronto: Office of the Registrar General); and data in Statistics Canada, 1971 Census of Canada, Population Marital Status, Bulletin 1.2-5 (Ottawa: Information Canada, 1973), Table 19.

TABLE 1.13

NATURAL INCREASE AS PERCENTAGE OF POPULATION CHANGE IN EDUCATION REGIONS OF ONTARIO[1], 1966-1971

County, District or Regional Area	Population 1966	Population 1971	Population Change 1966 - 1971	Natural Increase 1966-1971	Natural Increase as percent of population change. 1966-1971
Northwestern Region	223484	224370	886	12678	1430.93
Kenora[2]	53995	53230	- 765	4526	591.63*
Rainy River	25816	25750	- 66	1368	2072.73*
Thunder Bay	143673	145390	1717	6784	395.11
Midnorthern Region	298207	330945	32738	22055	67.37
Algoma	113561	121935	8374	8156	97.40
Manitoulin	10544	10930	386	335	86.79
Sudbury	174102	198080	23978	13564	56.57
Northeastern Region	274047	283370	9323	13090	140.40
Cochrane	97334	95835	- 1499	6191	413.01*
Muskoka[3]	27691	31940	4249	472	11.11
Nipissing	73533	78865	5332	4045	75.86
Parry Sound	28335	30245	1910	633	33.14
Timiskaming	47154	46485	- 669	1749	261.43*
Western Region	851325	923414	72089	77582	107.62
Elgin	61912	66610	4698	2242	47.72
Essex	280922	306400	25478	15189	59.62
Huron	54446	52955	- 1491	1183	79.34*
Kent	96406	101120	4714	40685	99.38
Lambton	108236	114315	6079	5233	86.08
Middlesex	249403	282014	32611	13050	40.02

County, District or Regional Area	Population		Population Change	Natural Increase	Natural Increase as percent of population change
	1966	1971	1966-1971	1966-1971	1966-1971
Midwestern Region	643969	716505	72536	26990	37.21
Brant	90945	96770	5825	3406	58.47
Bruce	43085	47385	43300	884	20.56
Grey	62592	66405	3813	1330	34.88
Oxford	76018	80350	4332	3148	72.67
Perth	60424	62975	2551	1909	74.83
Waterloo	216728	254040	37312	15821	42.40
Wellington	94177	108580	14403	492	34.22
Niagara Region	799814	835980	36166	37114	102.62
Haldimand	30020	32675	2655	1119	42.15
Niagara[4]	324917	347325	22408	15366	68.57
Norfolk	50578	54100	3522	1860	52.81
Wentworth[5]	394299	401880	7581	18769	247.58
Central Region	2751432	3181650	430218	165888	38.56
Dufferin	17108	21200	4092	619	15.13
Durham	44549	47490	2941	1781	60.56
Haliburton	7768	9080	1312	114	8.69
Halton[6]	140800	190470	49670	10785	21.71
Ontario	170818	196255	25437	10768	42.33
Peel	172321	259400	87079	17077	19.61
Simcoe	149132	171435	22303	5761	25.83
Victoria	30917	34240	3323	362	10.89
York[7] (includes Metropolitan Toronto)	2018019	2252080	234061	118621	50.68

Table 1.13 (cont'd)

County, District or Regional Area	Population 1966	Population 1971	Population Change 1966-1971	Natural Increase	Natural Increase as percent of population change 1966-1971
Eastern Region	437365	460465	23100	16937	73.32
Frontenac	97138	101695	4557	4808	105.51
Grenville	23429	24315	886	613	69.19
Hastings	94127	99395	5268	3429	65.09
Leeds	49129	50095	966	1644	170.19
Lennox and Addington	25202	28360	3158	1661	38.70
Northumberland	45074	48160	3086	1122	36.36
Peterborough	81959	87805	5846	3158	54.02
Prince Edward	21307	20640	- 667	502	75.26*
Ottawa Valley	681227	746420	65193	31812	48.80
Dundas	17106	17455	349	565	161.89
Glengarry	18181	18480	299	502	167.89
Lanark	41212	42260	1048	741	70.71
Ottawa-Carleton[8]	407463	471930	64467	22325	34.63
Prescott	27155	27830	675	857	126.96
Renfrew	89453	90875	1422	3882	273.00
Russell[9]	21107	16290	- 4817	850	17.65*
Stormont	59550	61300	1750	2090	119.43

* Percent of population decrease

1. See Appendix for listings of census divisions and subdivisions and changes made by 1971.
2. Includes Patricia Portion in both 1966 and 1971.
3. District of Muskoka became District Municipality of Muskoka in 1971.
4. Previously Lincoln and Welland Counties.
5. Part of the population of Burlington is included in 1966 but is excluded in 1971.
6. Excludes part of the population of Burlington in 1966; includes it in 1971.
7. Regional Municipality of York plus Municipality of Metropolitan Toronto in 1971, in order to achieve consistency with 1966 data for York County.
8. Changed to Ottawa-Carleton in 1969. Does not include the population of Cumberland Township in 1966.
9. Includes the population of Cumberland Township in 1966, but not in 1971.

Source: Computed from data on births and deaths in Province of Ontario, Vital Statistics, 1966 through 1971 (Toronto: Office of the Registrar General), and population data from the 1966 and 1971 Censuses of Canada.

TABLE 1.14

PERCENTAGE DISTRIBUTION OF FEMALE POPULATION BY AGE FOR EDUCATION REGIONS, ONTARIO, 1971

Age	Northwestern Region		Midnorthern Region		Northeastern Region		Western Region		Midwestern Region		Niagara Region		Central Region		Eastern Region		Ottawa Valley Region		Ontario	
	Number	%	Number	%	Number	%	Number	%	Number	%	Number	%	Number	%	Number	%	Number	%	Number	%
0-4	10125	9.29	15565	9.74	11990	8.59	37685	8.11	29800	8.31	32670	7.76	127325	7.94	17630	7.64	28230	7.49	311020	8.05
5-9	11795	10.82	19455	12.17	15995	11.46	46275	9.96	35990	10.03	40475	9.61	151735	9.47	22965	9.95	37675	9.99	382300	9.90
10-14	12230	11.22	19285	12.07	16660	11.94	46835	10.08	35555	9.91	41955	9.97	148115	9.24	23855	10.34	39520	10.48	384010	9.94
15-19	10965	10.06	16850	10.54	14440	10.35	43640	9.40	33505	9.34	39140	9.30	133995	8.36	22015	9.54	36670	9.72	351220	9.09
20-24	9170	8.41	14285	8.94	10610	7.60	40135	8.64	30500	8.50	34625	8.22	147930	9.23	18610	8.06	33395	8.86	339260	8.79
25-29	7110	6.52	11550	7.23	8695	6.23	31705	6.83	24085	6.71	28005	6.65	128020	7.99	14530	6.30	26975	7.15	280675	7.27
30-34	6110	5.61	9760	6.11	7985	5.72	26590	5.72	19730	5.50	23825	5.66	107245	6.69	12795	5.54	22065	5.85	236105	6.11
35-39	5905	5.42	9420	5.89	7665	5.49	25160	5.42	19385	5.40	24425	5.80	103095	6.43	12790	5.54	21410	5.68	229255	5.93
40-44	6130	5.62	8995	5.63	7450	5.34	26420	5.69	20245	5.64	26065	6.19	101860	6.36	13040	5.65	21930	5.82	232135	6.01
45-49	6615	6.07	8785	5.50	7735	5.54	28135	6.07	20855	5.81	27570	6.55	100680	6.28	13945	6.04	22880	6.07	237250	6.14
50-54	5710	5.24	7025	4.40	6745	4.83	23405	5.04	17960	5.01	21845	5.19	77675	4.85	12320	5.34	19680	5.22	192365	4.98
55-54	5050	4.63	5865	3.67	6355	4.55	20810	4.48	16735	4.67	19800	4.70	69930	4.36	11240	4.87	17335	4.60	173120	4.48
60-64	3775	3.46	4415	2.76	5235	3.75	17970	3.87	14370	4.01	16780	3.99	58450	3.65	9460	4.10	13620	3.61	144075	3.73
65-69	2980	2.73	3255	2.03	4350	3.12	16115	3.47	12810	3.57	14225	3.38	48630	3.04	7930	3.44	11440	3.03	121735	3.15
70-74	2185	2.01	2370	1.48	3245	2.33	13195	2.84	10400	2.90	11655	2.77	38500	2.40	6490	2.81	9400	2.49	97440	2.52
75-79	1545	1.42	1505	0.94	2160	1.55	9845	2.12	7990	2.23	8675	2.06	28430	1.77	5145	2.23	7030	1.86	72325	1.87
80-84	980	0.90	880	0.55	1310	0.94	6165	1.33	5100	1.42	5595	1.33	18275	1.14	3435	1.49	4635	1.23	46375	1.20
85+	615	0.57	565	0.35	930	0.67	4340	0.93	3715	1.04	3675	0.87	12840	0.80	2575	1.12	3190	0.85	32445	0.84
Total	108995	100.00	159830	100.00	139555	100.00	464475	100.00	358730	100.00	421005	100.00	1602730	100.00	230770	100.00	377080	100.00	3863070	100.00

Source: Statistics Canada, 1971 Census of Canada, Population Age Groups, Bulletin 1.2-3, (Ottawa: Information Canada, 1973) Cat. 92-715, Table 9.

TABLE 1.15

DISTRIBUTION OF FEMALES AGED 15-49 AS PERCENT OF FEMALE POPULATION AND OF TOTAL POPULATION, EDUCATION REGIONS AND ONTARIO, 1971

Age	Northwestern Region	Midnorthern Region	Northeastern Region	Western Region	Midwestern Region	Niagara Region	Central Region	Eastern Region	Ottawa Valley Region	Ontario
15-49	52005	79645	64580	222835	168305	203655	822825	107725	185325	1906900
% of Total Females	47.71	49.83	46.28	47.98	46.92	48.37	51.34	46.68	49.15	49.36
% of Total population	23.19	24.07	22.79	24.13	23.49	24.33	25.86	23.39	24.83	24.75
Total Females	108995	159830	139555	464475	358730	421005	1602730	230770	377080	3863070
% of Total population	48.60	48.30	49.25	50.30	50.07	50.30	50.37	50.11	50.52	50.14

Source: Statistics Canada, 1971 Census of Canada, Population Age Groups, Bulletin 1.2-3, (Ottawa: Information Canada, 1973) Cat. 92-715, Table 9.

TABLE 1.16

FEMALE POPULATION IN CHILDBEARING AGES AND PERCENTAGE CHANGE OVER 1961-1971 FOR COUNTIES, DISTRICTS AND REGIONAL AREAS IN EDUCATION REGIONS OF ONTARIO

Region	Age of Women									% change 1961-1971
	1971							1971	1961	
	Ages 15-19	20-24	25-29	30-34	35-39	40-44	45-49	Total 15-49	15-49	
Northwestern Region	10965	9170	7110	6110	5905	6130	6615	52005	48092	8.14
Midnorthern Region	16850	14285	11550	9760	9420	8995	8785	79645	65867	20.92
Northeastern	14440	10610	8695	7985	7665	7450	7735	64580	59053	9.36
Western Region	43640	40135	31705	26590	25160	27420	28185	222835	178284	24.99
Midwestern Region	33505	30500	24085	19730	19385	20245	20855	168305	127375	32.13
Niagara Region	39140	34625	28005	23825	24425	26065	27570	203655	171343	18.86
Central Region	133995	147930	128020	107245	103095	101860	100680	822825	568723	44.68
Eastern Region	22015	18610	14530	12795	12790	13040	13945	107725	91825	17.32
Ottawa Valley Region	36670	33395	26975	22065	21410	21930	22880	185325	145497	27.77
ONTARIO	351220	339260	280675	236105	229255	233135	237250	1906900	1456059	30.96

Source: Statistics Canada, 1971 Census of Canada, Population Age Groups, Bulletin 1.2-3, (Ottawa: Information Canada, 1973) Cat. 92-715, Table 9 and Dominion Bureau of Statistics, 1961 Census of Canada, Population Age Groups, Bulletin 1.2-2, (Ottawa: Queen's Printer, 1962), Cat. 92-542, Table 22.

TABLE 1.17

RATE OF NATURAL INCREASE IN ONTARIO COUNTIES, DISTRICTS AND REGIONAL AREAS BY EDUCATION REGIONS FOR THE YEAR 1971

County, District or Regional Area	Births	Deaths	Rate of Natural Increase
Northwestern Region	4389	1752	11.753
Kenora	1258	388	16.344
Rainy River	484	169	12.233
Thunder Bay	2647	1195	9.987
Midnorthern Region	6902	2030	14.721
Algoma	2297	756	12.638
Manitoulin	181	135	4.209
Sudbury	4424	1139	16.584
Northeastern Region	4960	2309	9.355
Cochrane	1901	714	12.386
Muskoka*	463	325	4.321
Nipissing	1396	544	10.803
Parry Sound	454	323	4.331
Timiskaming	746	403	7.379
Western Region	15999	7539	9.162
Elgin	1071	638	6.501
Essex	5536	2439	10.108
Huron	804	536	5.061
Kent	1796	885	9.009
Lambton	1924	903	8.931
Middlesex	4868	2138	9.680
Midwestern Region	12253	5715	9.125
Brant	1415	831	6.035
Bruce	725	512	4.495
Grey	987	706	4.232
Oxford	1246	710	6.671
Perth	999	562	6.939
Waterloo	4966	1561	13.403
Wellington	1915	833	9.965
Niagara Region	12926	6384	7.826
Haldimand	522	323	6.090
Niagara**	5475	2540	8.450
Norfolk	846	508	6.248
Wentworth	6083	3013	7.639

Table 1.17 (cont'd)

County, District or Regional Area	Births	Deaths	Rate of Natural Increase
Central Region	54104	21003	10.404
Dufferin	377	209	7.925
Durham	686	329	7.517
Haliburton	112	102	1.101
Halton	3238	935	12.091
Ontario	3254	1281	10.053
Peel	5021	979	15.582
Simcoe	2848	1454	8.131
Victoria	466	428	1.110
York** (includes Metro Toronto)	38102	15286	10.131
Eastern Region	7110	3863	7.052
Frontenac	1736	673	10.453
Grenville	328	231	3.989
Hastings	1527	831	7.002
Leeds	802	467	6.687
Lennox & Addington	455	231	7.898
Northumberland	561	477	3.821
Peterborough	1327	727	6.833
Prince Edward	274	226	2.326
Ottawa Valley Region	11610	5487	8.203
Dundas	262	168	5.385
Glengarry	261	167	5.087
Lanark	602	449	3.620
Ottawa-Carleton**	7424	3041	9.287
Prescott	397	215	6.540
Renfrew	1436	727	7.802
Russell	279	156	7.551
Stormont	949	564	6.281
ONTARIO	130253	53773	9.928

* District Municipality in 1971

** Regional Municipality in 1971

Source: Data on births and deaths, courtesy of Statistics Canada and Office of the Registrar General for the Province of Ontario; population data from Province of Ontario, Vital Statistics 1971, (Toronto: Office of the Registrar General), Table 1.

TABLE 1.18

GROSS REPRODUCTION RATES PER 1000 WOMEN FOR COUNTIES, DISTRICTS AND REGIONAL AREAS IN EDUCATION REGIONS OF ONTARIO, 1971

County, District or Regional Area	Gross Reproduction Rates
Northwestern Region	1324.50
Kenora	1636.86
Rainy River	1349.11
Thunder Bay	1203.03
Midnorthern Region	1327.61
Algoma	1274.96
Manitoulin	1464.03
Sudbury	1350.17
Northeastern Region	1207.10
Cochrane	1327.48
Muskoka *	1080.94
Nipissing	1177.33
Parry Sound	1147.95
Timiskaming	1103.39
Western Region	1131.06
Elgin	1153.66
Essex	1180.64
Huron	1246.99
Kent	1241.10
Lambton	1170.69
Middlesex	1019.17
Midwestern Region	1148.89
Brant	952.25
Bruce	1226.17
Grey	1185.97
Oxford	1148.68
Perth	1255.18
Waterloo	1177.70
Wellington	1148.54
Niagara Region	1042.22
Haldimand	1245.10
Niagara **	1109.24
Norfolk	1043.54
Wentworth	973.56
Central Region	1023.32
Dufferin	1202.79
Durham	1049.08
Haliburton	1104.33
Halton	1080.12
Ontario	1117.53
Peel	1118.58
Simcoe	1152.34
Victoria	1069.22
York** (includes Metropolitan Toronto)	992.94

Table 1.18 (cont'd)

County, District or Regional Area	Gross Reproduction Rates
Eastern Region	1089.74
Frontenac	1078.56
Grenville	959.45
Hastings	1120.18
Leeds	1075.65
Lennox and Addington	1124.11
Northumberland	1141.12
Peterborough	1071.52
Prince Edward	1169.04
Ottawa Valley Region	991.01
Dundas	1183.78
Glengarry	1161.45
Lanark	1020.90
Ottawa-Carleton**	928.79
Prescott	1034.30
Renfrew	1157.55
Russell	1397.58
Stormont.	1079.86
ONTARIO	1075.91

* District Municipality in 1971

** Regional Municipality in 1971

Source: Compiled from data on female births courtesy of Statistics Canada and Office of the Registrar General for Ontario and data on female population in Statistics Canada, 1971 Census of Canada, Population Age Groups, Bulletin 1.2-3 (Ottawa: Information Canada, 1973) Cat. 92-715, Table 5.

Chapter Two
Are We Living Longer?

Introduction

When we are making projections for the number of students of school age, we tend to concentrate upon fertility and migration as the main determinants of future population. To a considerable extent this preoccupation is justified, but trends in mortality also influence the projection. Mortality affects population chiefly in two ways: (1) by reducing the number of population in any given sex and age group of the population, according to the incidence of mortality for that group, and (2) by enabling more young persons to live through the childbearing ages than formerly and thereby permitting more babies to be born, which increases the number of population.

The best known measure of mortality is the crude death rate--that is, the number of deaths in relation to every 1000 persons in the population. While this is a useful measure for overall comparisons between areas and over time, it can be misleading because it does not take into account the age and sex composition of the population. Where there is an enlargement of the age groups subject to high rates of mortality (the very young and the very old) the crude death rate increases; where those groups are small in relation to total population, the crude death rate goes down. Because women tend to outlive men, a large balance of female population lowers the crude death rate. In view of the importance of these factors it is necessary to relate mortality to both age and sex in order to assess adequately the significance of fluctuations in the overall level of the death rate.

Certain patterns of mortality change are familiar to us as a consequence of the experience of countries which have gone through the process known as the demographic transition. In its earliest phase, that process consists of the lowering of the crude death rate below the level of the crude birth rate, so that the population grows through natural increase (births minus deaths). While the death rate continues to fall and remains below the birth rate, the birth rate also begins to decline. Eventually both birth and death rates stabilize at much lower levels than formerly. Whereas the rate of natural increase (the difference between births and deaths per 1000 population) may be at almost the same level as at the beginning of the transition, after the transition has been completed the balance is accomplished more efficiently because there is less wastage of life.

As a consequence of this demographic transition, birth and death rates may fall from over 40 per 1000 to less than 10 per 1000. As death rates fall, the number of years people live is greater. The increase in expectation of life at birth associated with the decline in mortality over the demographic transition is typically from 25 or 30 years to 70 years or more.

Changes in death rates are associated with improvements in environmental factors. The most familiar examples are agricultural, medical and sanitary, and industrial revolutions in Western Europe which reduced food shortages, curtailed epidemic disease, and improved public health conditions. Over a period of 130 years or more, these improvements induced the patterns of population change which have been described as the demographic transition. In some countries today, improvements are introduced within a short period of years, bringing about a dramatic reduction in death rates as well as changes in population structure.

In Canada, and in Ontario, mortality declined rapidly during the last few decades of the 19th century and the first half of the present century. By 1922 the death rate in Ontario was 11.4 per 1000, which is typical of a country in the advanced phases of demographic transition. By 1932 the death rate had fallen further to 10.5; by 1952 it was 9.3; by 1962 it was 8.2 and by 1972 it had fallen to 7.5 (roughly its present level).

Trends in Death Rates

The decline in death rates has been a continuing one, although the age and sex incidence of mortality has altered over the years. Here again, the pattern of change is known as a result of the experience of countries which have passed through the demographic transition. Before the transition begins, the expectation of life at age 10 exceeds the expectation of life at birth. Because the initial decline in death rates is associated with an increased control over infectious and communicable diseases, and the younger age groups of the population tend to be most benefitted, life expectancy for children and young adults is extended and life expectancy at birth comes to exceed that at age 10. Only during the first year of life is the incidence of mortality in advanced areas still so high that the expectation of life at the end of that year may exceed the expectation of life at birth (as an example, see Tables 2.9 to 2.12 below) for Ontario and education regions.

As control is won over infectious and communicable diseases, the expectation of life at birth tends to increase from about 40 years to around 60 years. More persons survive beyond the childhood ages, and causes of death which are related to the middle years of life--afflictions such as cancer, diseases of the heart and the circulatory system, and bronchitis at older ages--become proportionately more important.

Eventually, as expectation of life rises from 60 to 70 years and beyond, because more people are surviving into the older age groups, the causes of death associated with senility become increasingly important. However, overall progress in mortality control tends to occur at a slower pace.[1]

Shifts in Incidence of Mortality

Canada is one of the demographically advanced areas of the world. The expectation of life at birth for males in 1971 was roughly 70 years, and that for females was 77 years. The crude death rate in 1971 stood at a level of 7.4 per 1000 for Ontario generally, varying regionally from 6.1 to 8.4.

The crude death rates for Ontario counties, districts, and regional areas are given in Table 2.0, and age-specific death rates for Ontario and counties, districts, and regional areas by education regions are given in Tables 2.1 and 2.2. These tables indicate consistent reductions in death rates over the years 1956, 1961, 1966, and 1971 across Ontario. Regionally, the variations among death rates are not very great, although there are some signs that mortality control may be slightly lower in underdeveloped parts of the province than in the more urban sections of south and southwestern Ontario. For the counties, districts, and regional areas, crude death rates tended to be highest in Manitoulin (12.4), Muskoka (10.3), Parry Sound (10.7), Huron (10.0), Bruce (10.8), Grey (10.6), Haliburton (11.3), Victoria (12.5), Prince Edward (10.9), and Lanark (10.7). Crude rates were lowest in Sudbury (5.8), Halton (4.9), and Peel (3.8), where proportionately large parts of the population were in the younger ages.

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[1] According to Donald J. Bogue, in Principles of Demography (New York: Wiley, 1969), gains of reduction in mortality of 90% or more have been made in the past two centuries for death rates at ages under 15, and reductions of 85% or more have been accomplished for ages under 44, whereas reductions of only slightly more than one-third have been attained for ages 65 and over (see pp. 568-569).

Although crude death rates were generally declining over the years from 1956, there were considerable differences across the province. In some areas--Manitoulin, Muskoka, Parry Sound, and Haliburton--apparent increases in crude death rates had occurred. Where crude death rates had risen, infant mortality rates were also high (see Table 2.4 and Figure 2A), with the exception of Muskoka.

There are several factors accounting for differences in mortality levels in counties, districts, and regional areas. One is that the incidence of death is greatest near the period of birth so that, where fertility is high, infant mortality increases the number of deaths for the area. Also, at every age, females are less likely to die than are males.[2] Consequently, areas with a high proportion of female population tend to have lower crude death rates. Environmental conditions and age composition obviously contribute towards some of the differentials in mortality across the province.

Mortality in Ontario follows the age-specific pattern exhibited in most Western countries. Age-specific rates are high during the first year of life, and particularly during the first month. After that the rates decline rapidly through childhood to age 10. Then they remain low, with a slight upward trend from age 20 until about age 40. After age 40 they rise gradually--and from age 45, considerably faster. They increase precipitously from age 55 to 60, attaining levels around age 65 which are roughly equivalent to that for the first year of life.

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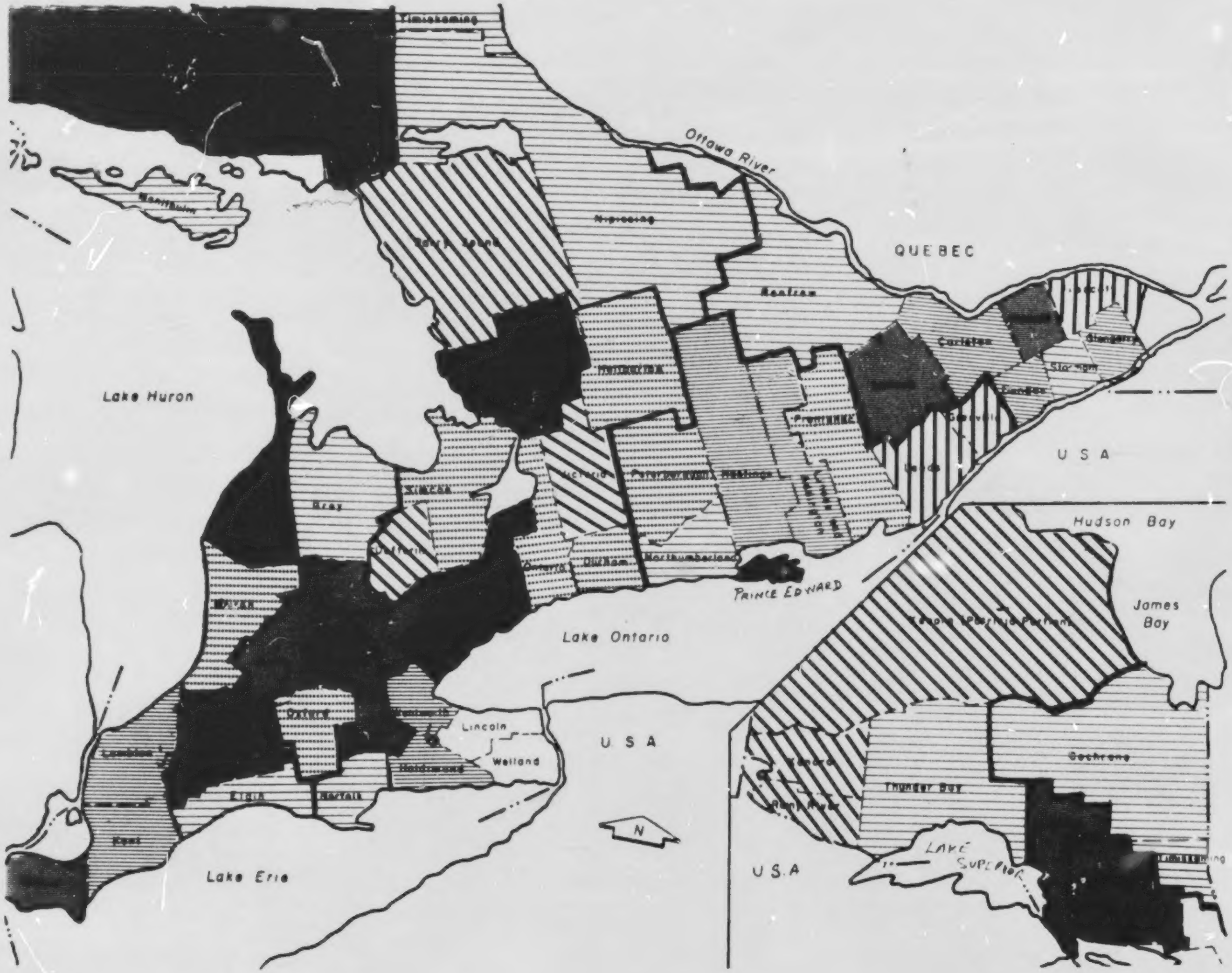
[2] See Macleod et al., Patterns and Trends in Ontario Population, pp. 146-148.

FIGURE 2A: INFANT MORTALITY RATES ACROSS ONTARIO IN 1971


Timiskaming
Ottawa River
Nipissing
Parry Sound
QUEBEC
Renfrew
Carleton
Prescott
Glengarry
Stormont
Dundas
Grenville
Leeds
Frontenac
Haliburton
Hastings
Peterborough
Victoria
Simcoe
Grey
Dufferin
Bruce
Ontario
Durham
Northumberland
PRINCE EDWARD
Lake Huron
Lake Ontario
Lake Erie
Oxford
Wentworth
Lincoln
Welland
Haldimand
Norfolk
Elgin
Lambton
Kent
U S A
Hudson Bay
James Bay
Kenora (Patricia Portion)
Kenora
Rainy River
Thunder Bay
Cochrane
Timiskaming
LAKE SUPERIOR
U.S.A.
N

Pattern Code:	Infant deaths per 1000 live births
■	Under 10
■	10 - 12.99
▓	13 - 14.99
▤	15 - 15.99
▤	16 - 17.99
▤	18 - 23.99
▧	24 - 35.99

(Ontario Rate: 15.15)

Source: Table 2.4

The changes in incidence of deaths by age and sex across Ontario over the census years 1956, 1961, 1966, and 1971, as shown in Table 2.1, indicate historical decline in mortality rates across nearly all age groups. The possible exception is for women aged 40 to 44, where age-specific mortality appears to have risen in 1971. This apparent deviation may correct itself in future years, or it may reflect an actual increase in mortality associated with a higher participation of women in the labour force (see Chapter Four below).

It can also be seen from Table 2.1 that there are differences in mortality trends over the various age levels which are associated with an individual's sex. Men aged 15 to 35, for instance, have death rates two or three times higher than those for women of the same ages, largely as a consequence of deaths due to accidents. There used to be an increase in mortality for women in the childbearing years, but deaths associated with childbirth have now fallen so low as to be almost negligible.

Tables 2.2 and 2.3 give the age-specific death rates for males and females for the various counties, districts, and regional areas by education region. These rates generally confirm the pattern of crude death rates and, where they deviate, the relative age structure is likely to be an underlying factor. However, certain statistical irregularities, resulting from the small number of deaths and base population in some age groups, suggest caution when interpreting the data.

Infant mortality across counties, districts, and regional areas of Ontario, arranged by education regions, is indicated in Table 2.4. Infant mortality has been declining steadily but differentials across the province are still considerable. On the whole, Ontario's infant mortality is at the lowest level for any province in Canada, but is relatively high when compared with certain countries of the world, particularly Japan and the Scandinavian countries. Highest infant mortality in Ontario counties, districts, and regional areas in 1971 was in Prescott, Dufferin, Victoria, Grenville, Rainy River, Parry Sound, Leeds, and Kenora, which are either sparsely populated or economically disadvantaged areas. Lowest infant mortality was in Prince Edward County (7 infant deaths per 1000 live births), with Halton, Bruce, York (including Toronto), and Muskoka next, all in the 11 to 13 range.

The proportion of deaths of people aged 50 or more tends to increase as people live longer. This change since 1956 is shown for Ontario in

Table 2.5; the proportions of deaths of persons aged 50 and over in 1971 are shown in Table 2.6 for the counties, districts, and regional areas. In 1971 deaths of persons aged 50 or over accounted for more than 83% of total deaths in most areas, as compared with about 80% in 1961. Areas with levels of in-migration above the average for Ontario and an age composition with a higher proportion of younger persons, such as Halton and Peel, had proportionately more deaths in the younger ages than elsewhere. Age-specific death rates were generally lower in those two areas than the Ontario average, except for males aged 15 to 25 in Halton, where rates were higher. Other areas, including Elgin, Huron, Brant, Grey, Oxford, Durham, Haliburton, Northumberland, Lanark, and Stormont, had 90% or more of deaths in the 50 or over age group. Of these, indications were that the age-specific incidence of deaths was higher in Elgin, Brant, Oxford, Durham, Northumberland, Lanark, and Stormont than in Ontario generally. However, age-specific death rates for persons aged 50 and over were somewhat lower in Huron, Grey, and Haliburton, suggesting that age structure (i.e., more persons in the 50 and over age groups) was the likely explanation for the higher proportionate age mortality.

Changing Causes of Mortality

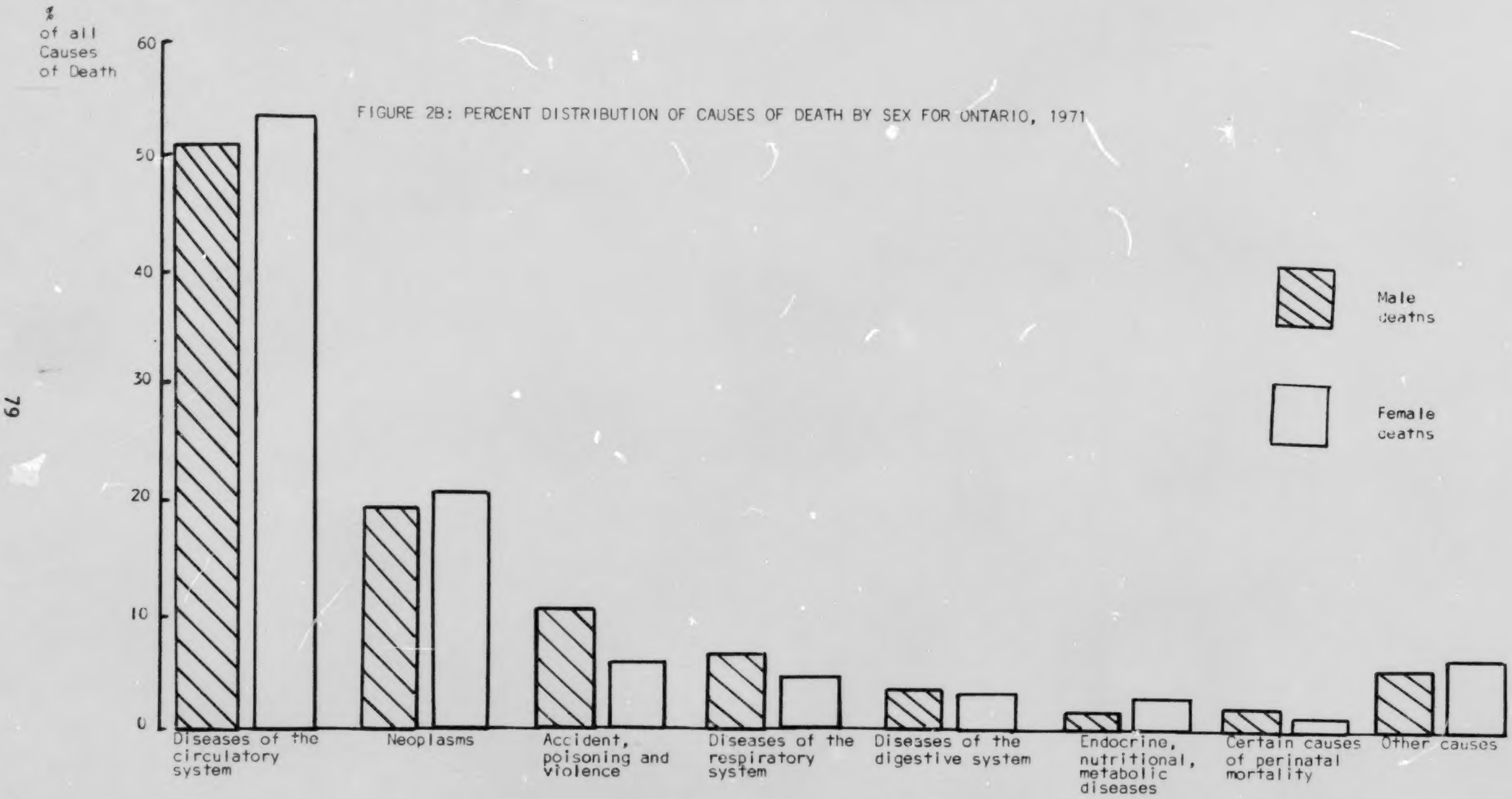
Death is ordinarily caused by illness; sometimes, also, it is the result of accidents or violence. Accordingly, we can analyse trends in mortality in Ontario by examining causes of death and changes or variations in their proportionate importance over time and across different parts of the province.

The grouping of deaths according to apparent causes permits a general analysis of overall trends, but some difficulties are inherent in this procedure. Most important, death is attributed to one cause when it may in reality have been the result of dual or multiple causes.

Figure 2B illustrates the causes of mortality in Ontario, according to broad major groupings. The changes for the province since 1956 are given in Table 2.7 and the percentage distribution of causes of death in 1971 for counties, districts, and regional areas within education regions is presented in Table 2.8.

The most significant increase in causes of death across Ontario over the period 1966-71 was for diseases of the circulatory system, which rose almost 28%. Deaths of females from that cause went up almost 39%, a

FIGURE 2B: PERCENTAGE DISTRIBUTION OF CAUSES OF DEATH BY SEX FOR ONTARIO, 1971



Source: Based on data in Province of Ontario, Vital Statistics 1971 (Toronto: Office of the Registrar General), Table 26.

greater increase than for any other cause of death for either sex. Neoplasms (i.e., cancer and related diseases) as well as accidents each increased as a group about 15%. Deaths from diseases of the circulatory system, neoplasms, and accidents all increased more rapidly than over the 1956-61 or 1961-66 periods. Deaths from disease of the digestive system, particularly for males, also gained significantly (18%), while diseases of the respiratory system increased at a slower rate than formerly. Additional causes of death--endocrine, nutritional and metabolic diseases, perinatal mortality, and other causes--all declined, some significantly.

Across the education regions, the general pattern for Ontario held broadly. Diseases of the circulatory system caused 50% or more of male deaths in 38 counties, districts, or regional areas out of the total 54. The proportions were almost as high for females.

Neoplasms generally caused 15% to 20% of deaths, the highest proportions occurring for females. In Halton, Peel, Toronto, Waterloo, Sudbury, and Dundas, where the highest proportions of female deaths resulting from neoplasms were found, the proportions averaged 23.32%. Proportions of male deaths caused by neoplasms were highest in Toronto and Glengarry, at about 22%.

Accidents and violence accounted for a larger proportion of deaths in Kenora (23%) than elsewhere. In Manitoulin, as well, over 20% of male deaths were the result of accidents and violence; the proportion in Sudbury was almost as high.

Life Expectancy

The improving control over mortality, both in the long and the short run, has added years to the expectation of life at birth. In Canada, life expectancy has improved steadily throughout the present century, and especially since the 1930s. Canadian males could expect to live 69 years in 1968, as compared with only 60 years in 1930-32; Canadian females could expect to live 75 years in 1968, as compared with 62 years in 1930-32.[3] Improvements in medical and health facilities and in the standard of living have extended life expectancy even more since 1968 and will continue to do so in the future.[4]

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[3] Life Expectancy Trends 1930-32 to 1960-62 (Ottawa: Dominion Bureau of Statistics, 1967), Cat. 84-518, Occasional, p. 15.

The increase in expectation of life at birth by 1971 to almost 70 years for men, and nearly 77 years for women, represented a gain since 1956 of 1.68 years for males and around 3 years for women. The larger gain for women tended to widen the differences in expectation of life between the sexes as compared with those existing before 1966, so that in 1971 expectation of life was still consistently higher at all ages for females than for males. In very recent years, mortality control has been advancing at a faster rate for males than for females for persons aged 10 and over, suggesting that some reduction of the gap between male and female mortality may occur in the future.

The explanation for differential mortality between the sexes lies in the relative incidence of the various causes of death. The biggest difference between male and female mortality occurred for deaths resulting from accidents, poisoning, and violence, although other causes (including cardiovascular disease in particular) also had a higher incidence for males. Further gains in control over causes of death where the incidence is currently higher for males than for females may tend to raise the male expectation of life towards that prevailing for the female.

Across the education regions male expectation of life at birth varied from about 67 to 71 years, that of females from 74 to almost 78 years. The northern regions of the province, containing Rainy River, Kenora, Thunder Bay, Algoma, Sudbury, Manitoulin, Cochrane, Parry Sound, Timiskaming, Muskoka, and Nipissing, generally had the lowest expectations of life for both males and females (as one would expect from trends in age-specific death rates for those areas). Life expectancy was generally highest in the Midwestern, Niagara, Central, and Eastern Regions around Lake Ontario, where most of the highly urbanized counties and regional municipalities are located. Probably the greater social and economic development of those areas provided improved access to, and more extensive use of, medical facilities, permitting greater control over illness and extension of the life span beyond that possible elsewhere in Ontario.

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[4] K. S. Gnanasekaran, "Mortality Trends and Projections by Causes of Death in Canada 1950-1990," a paper prepared for the Harvard Actuarial Conference in Boston, November 29-30, 1973.

During recent years, the most important extensions in life expectancy were for persons in the adult age groups, particularly for men aged 50 to 70 and for women around 60 years of age. These increases added about 5 months to the expectation of life for both males and females aged 50 in 1971, over expectation in 1966. Across the education regions expectation of life for males aged 50 in 1971 varied from 23 to 25 years, and that for females from 29 to 31 years. Persons in the Midwestern, Niagara, and Central Regions clearly had somewhat higher expectations of life, even at those ages, than in most other parts of Ontario.

Conclusions

Unlike fertility and migration, there is no counter philosophy to the desire to reduce deaths and increase life expectation. Consequently, the reduction of mortality depends primarily upon medical advances and scientific discoveries which improve the environmental conditions we live in, and the spread of knowledge and the capability to implement improvements as they are perfected. Therefore, progress against mortality is gradual and relatively predictable. We can be confident of continuing reduction in age-specific mortality for most ages, particularly in those parts of Ontario where levels are above those in the rest of the province.

Making assumptions about the trends of death rates as input to the population projections was, consequently, one of the easier tasks in developing the projections. Although there were a few exceptions for particular ages, we could generally assume that death rates would go down over the next 16 years. The question was how fast the rates would decline, and in what areas and for what ages would they decline faster than for others.

The assumptions that were made were related to the rates of decline over the period 1956 to 1971. We assumed that the future decline for ages 1 to 44 would be at two-thirds the rate of decline during 1956-71, and that for ages 45 and over the decline would be one-third that for 1956-71. These assumptions may prove to be underestimates; however, they are somewhat more sweeping than those made by other projecting agencies.

Assumptions about infant mortality gave us the greatest trouble. As mentioned above, infant mortality is at relatively high levels in some parts of Ontario and the average for the province is somewhat above what we might expect in a demographically advanced area. In deciding about input for the projections, we assumed that by 1991 infant mortality would approach the best levels recorded in the world for 1971, and the computer graduated the necessary rates of change over the years from 1971 to 1986. The result implicitly maintained the pattern of regional differentials from earlier years but the differences among regions were reduced.

TABLE 2.0

CRUDE DEATH RATES IN EDUCATION REGIONS OF ONTARIO, 1956, 1961, 1966 and 1971

County, District or Regional Area	1956	1961	1966	1971
Northwestern Region:	7.8	7.6	7.9	7.8
Kenora[1]	8.0	8.2	8.7	8.0
Kenora (Patricia Portion)	7.1	4.9	5.6	
Rainy River	8.9	8.0	7.6	7.2
Thunder bay	7.6	7.6	7.9	8.4
Midnorthern Region	6.9	6.1	6.2	6.1
Algoma	7.8	6.8	6.8	6.3
Manitoulin	10.9	9.6	10.0	12.4
Sudbury	6.0	5.5	5.6	5.8
Northeastern Region	8.1	8.0	8.2	8.2
Cochrane	7.0	7.1	7.0	7.5
Muskoka[2]	9.9	9.9	11.2	10.3
Nipissing	7.5	7.0	7.6	6.9
Parry Sound	10.3	9.7	10.7	10.7
Timiskaming	8.7	9.1	8.0	8.7
Western Region	8.9	8.6	8.5	8.2
Elgin	10.0	10.4	10.3	9.6
Essex	8.0	8.4	8.4	8.1
Huron	10.6	10.3	9.9	10.1
Kent	9.9	8.6	8.8	8.8
Lambton	8.6	8.3	7.8	8.0
Middlesex	9.1	8.9	8.0	7.6
Midwestern Region	10.0	9.2	8.8	8.0
Brant	10.0	9.4	9.1	8.6
Bruce	12.8	12.6	10.6	10.8
Grey	11.4	10.8	11.8	10.6
Oxford	9.5	9.3	9.5	8.9
Perth	11.5	9.7	9.8	8.9
Waterloo	8.5	7.5	7.1	6.2
Wellington	9.8	9.1	8.5	7.7
Niagara Region	8.4	7.9	8.0	7.6
Haldimand	10.1	10.6	8.9	9.0
Niagara[3]				7.4
Lincoln	8.1	7.8	7.6	
Welland	8.1	7.3	7.8	
Norfolk	9.8	9.1	10.0	9.5
Wentworth[4]	8.2	7.8	8.0	7.4

Table 2.0 (cont'd)

County, District or Regional Area	1956	1961	1966	1971
Central	8.5	8.0	7.[illegible]	6.5
Dufferin	11.9	11.1	9.6	9.9
Durham	8.6	9.1	7.8	7.0
Haliburton	7.9	8.5	12.1	11.3
Halton[5]	6.4	6.5	5.0	4.9
Ontario	8.0	7.1	6.3	6.5
Peel	6.8	5.8	5.1	3.8
Simcoe	9.5	9.0	8.8	8.5
Victoria	13.0	14.1	10.7	12.5
York[6]	8.6	8.0	7.4	7.1
Metropolitan Toronto				6.8
Eastern Region	9.6	9.0	[illegible]	8.4
Frontenac	8.9	7.5	7.5	6.7
Grenville	10.7	9.0	9.9	9.5
Hastings	9.2	9.1	8.3	8.4
Leeds	10.4	9.1	10.2	9.4
Lennox and Addington	10.2	9.2	8.7	8.1
Northumberland	10.6	10.9	9.9	9.9
Peterborough	8.9	9.0	8.5	8.3
Prince Edward	10.7	10.3	9.9	10.9
Ottawa Valley	9.3	[illegible]	7.[illegible]	7.4
Dundas	11.5	9.7	10.4	9.7
Glengarry	9.6	9.7	11.1	9.2
Lanark	11.2	10.7	10.3	10.7
Ottawa-Carleton[7]	9.0	7.7	7.3	6.6
Prescott	9.2	8.8	7.8	7.9
Renfrew	8.9	8.4	8.1	8.1
Russell[8]	8.[illegible]	7.8	9.4	9.6
Stormont	8.8	7.8	8.2	9.3
ONTARIO[9]	8.8	8.2	7.8	7.4

1. Patricia portion was included in Kenora in 1971.

2. District of Muskoka formed into the District Municipality of Muskoka, January 1, 1971.

3. Lincoln and Welland had become the Regional Municipality of Niagara by 1971.

4. Part of the population of Burlington, included in earlier years, is excluded in 1971.

5. Excludes part of the population of Burlington in 1966 and earlier years; includes it in 1971.

6. Data for Metropolitan Toronto were recorded separately from the Regional Municipality of York in 1971, but are included in earlier years.

7. Became a Regional Municipality in 1969, including Cumberland Township which is excluded in earlier years.

8. Excludes Cumberland Township in 1971; includes it for earlier years.

9. See Appendix for full listing of census divisions and subdivisions in 1971.

Source: Province of Ontario, Vital Statistics 1956, 1961, 1966 and 1971 (Toronto: Office of the Registrar General), respective Detailed Tables.

TABLE 2.1

AGE SPECIFIC DEATH RATES BY AGE AND SEX FOR ONTARIO, 1956, 1961, 1966 and 1971

Age	Males				Females			
	1956	1961	1966	1971	1956	1961	1966	1971
0-1	27.60	25.87	22.79	20.90	22.37	19.08	17.54	16.24
0-4	7.43	6.37	4.78	4.06	5.99	4.06	3.71	3.19
5-9	0.68	0.55	0.49	0.48	0.40	0.35	0.42	0.35
10-14	0.50	0.50	0.53	0.41	0.36	0.31	0.27	0.31
15-19	1.39	1.12	1.14	1.22	0.46	0.45	0.48	0.50
20-24	1.45	1.53	1.46	1.47	0.55	0.53	0.46	0.49
25-29	1.46	1.31	1.28	1.13	0.74	0.71	0.60	0.51
30-34	1.78	1.40	1.46	1.44	0.86	0.86	0.82	0.78
35-39	2.17	2.22	2.00	1.98	1.28	1.32	1.21	1.23
40-44	3.20	3.34	3.25	3.33	2.23	1.88	1.95	2.01
45-49	5.85	6.14	5.90	5.38	3.57	3.34	3.32	3.01
50-54	10.29	10.10	9.87	9.05	5.81	5.34	5.08	4.63
55-59	16.48	16.21	16.03	14.82	9.01	7.02	7.81	7.26
60-64	25.74	25.59	24.81	23.35	14.26	12.31	12.53	10.87
65-69	39.38	37.74	38.55	36.13	22.05	21.41	18.77	17.39
70-74	57.03	58.94	56.55	52.63	37.16	33.81	30.83	27.64
75+	122.96	118.04	122.16	116.70	104.19	98.00	90.76	80.96

Source: Computed from death data supplied by Statistics Canada, and population data from Censuses of Canada for 1956, 1961, 1966 and 1971.

TABLE 2.2

AGE SPECIFIC DEATH RATES FOR COUNTIES, DISTRICTS AND REGIONAL AREAS IN ONTARIO, 1971 - MALE

Age	Northwestern Region		
	Kenora[1]	Rainy River	Thunder Bay
0-4	6.26	7.44	6.19
5-9	1.22	0.70	0.53
10-14	1.20	0.63	0.87
15-19	3.94	0.0	1.33
20-24	1.31	0.0	1.57
25-29	2.79	0.0	1.45
30-34	4.29	4.48	2.23
35-39	2.51	3.01	2.17
40-44	2.73	9.52	3.25
45-49	10.64	2.70	5.47
50-54	12.05	8.06	10.00
55-59	13.10	5.93	14.98
60-64	24.73	13.46	27.37
65-69	27.74	22.22	40.00
70-74	49.48	43.08	58.21
75-79	83.64	55.00	80.83
80-84	83.33	100.00	160.00
85+	273.68	166.67	202.99

Table 2.2 (cont'd)

Age	Midnorthern Region		
	Algoma	Manitoulin	Sudbury
0-4	2.89	8.51	4.82
5-9	0.68	3.23	0.66
10-14	0.69	0.0	0.33
15-19	1.40	3.13	1.41
20-24	2.10	3.08	2.31
25-29	1.19	3.85	1.59
30-34	1.79	3.92	3.24
35-39	2.45	10.71	2.83
40-44	2.79	10.91	5.15
45-49	7.63	7.69	8.05
50-54	10.54	3.92	12.10
55-59	11.67	40.91	18.00
60-64	31.15	21.82	29.41
65-69	43.07	37.50	43.34
70-74	76.14	51.43	85.32
75-79	92.80	113.04	95.24
80-84	103.03	107.69	173.77
85+	185.37	220.00	200.00

Table 2.2 (cont'd)

Age	Northeastern Region				
	Cochrane	Muskoka	Nipissing	Parry Sound	Timiskaming
0-4	5.49	3.69	5.02	7.11	3.54
5-9	0.68	1.93	0.20	0.0	0.0
10-14	0.33	0.0	0.58	2.32	0.35
15-19	0.07	1.22	1.89	1.25	1.13
20-24	0.39	0.87	3.31	0.93	1.66
25-29	1.20	0.0	1.67	1.19	0.77
30-34	0.73	2.49	0.86	2.63	0.82
35-39	3.58	1.16	2.32	2.61	4.92
40-44	8.00	3.39	4.75	3.80	4.86
45-49	7.32	9.20	8.53	6.21	7.89
50-54	10.89	10.06	12.00	12.42	10.14
55-59	21.93	10.23	14.70	12.72	14.94
60-64	24.26	26.25	28.93	28.57	23.31
65-69	47.92	39.74	46.32	30.77	32.95
70-74	63.32	46.73	55.07	48.60	73.95
75-79	83.81	92.96	87.23	77.33	92.54
80-84	167.27	117.07	151.02	109.52	154.55
85+	237.50	200.00	160.00	216.67	234.78

Table 2.2 (cont'd)

Age	Elgin	Western Region				
		Essex	Huron	Kent	Lambton	Middlesex
0-4	5.24	3.75	5.48	4.38	3.86	4.64
5-9	0.30	0.74	0.0	0.55	0.17	0.55
10-14	0.62	0.30	0.34	0.35	0.46	0.21
15-19	1.96	1.15	1.48	1.75	0.84	1.48
20-24	1.10	1.79	3.47	1.92	1.66	1.79
25-29	1.34	2.17	0.66	3.08	1.81	1.49
30-34	1.00	1.38	0.73	3.21	1.55	1.36
35-39	2.31	2.56	1.53	1.85	2.11	2.04
40-44	3.39	3.27	2.11	4.62	3.30	3.26
45-49	3.65	5.66	3.66	5.41	4.13	5.44
50-54	9.25	10.11	8.86	8.53	11.22	8.39
55-59	15.20	15.30	12.32	15.48	18.18	14.90
60-64	25.85	23.88	27.34	19.20	22.60	22.08
65-69	33.06	32.58	25.12	37.12	38.96	37.74
70-74	45.56	49.00	49.06	61.92	46.86	53.89
75-79	75.63	83.64	69.09	64.60	88.34	85.12
80-84	126.03	132.06	138.03	109.68	113.95	121.90
85+	200.00	197.18	200.00	264.41	242.55	225.37

Table 2.2 (cont'd)

Age	Brant	Bruce	Grey	Oxford	Perth	Waterloo	Wellington
	Midwestern Region						
0-4	3.53	3.69	5.15	5.99	4.44	4.16	4.44
5-9	0.0	1.63	0.0	0.72	0.62	0.38	1.02
10-14	0.60	0.38	0.58	0.0	0.28	0.24	0.52
15-19	0.63	1.23	2.09	2.02	1.55	1.75	1.61
20-24	1.90	6.29	4.10	3.35	4.30	1.71	1.23
25-29	1.58	1.47	3.29	0.39	1.02	1.05	1.04
30-34	1.11	0.86	1.24	2.61	1.75	1.05	2.21
35-39	2.99	0.0	0.58	3.67	1.83	2.10	2.24
40-44	1.80	6.48	2.70	4.30	0.55	2.74	1.88
45-49	5.22	5.06	3.23	4.24	5.07	4.56	3.38
50-54	13.07	10.70	6.72	10.03	6.14	7.39	10.40
55-59	15.80	16.60	14.77	18.37	12.54	12.51	11.32
60-64	19.55	18.49	20.42	25.94	16.60	22.87	17.95
65-69	42.95	32.71	34.93	37.31	29.07	30.65	36.09
70-74	57.82	51.16	38.86	50.00	57.14	52.51	46.40
75-79	75.36	71.07	78.91	81.94	72.27	69.29	67.90
80-84	128.74	112.68	120.45	162.86	129.58	116.56	147.92
85+	190.0	204.76	235.71	191.49	180.00	224.44	178.79

Table 2.2 (cont'd)

Age	Niagara Region			
	Haldimand	Niagara[3]	Norfolk	Wentworth
0-4	4.29	3.49	5.27	3.76
5-9	1.08	0.60	1.06	0.20
10-14	0.52	0.69	0.67	0.49
15-19	1.61	0.87	1.43	0.91
20-24	3.25	1.09	1.39	1.24
25-29	0.0	0.87	1.77	1.04
30-34	0.0	0.72	3.97	0.84
35-39	1.18	2.32	3.34	2.27
40-44	7.53	3.41	2.53	2.80
45-49	7.32	5.53	8.36	4.56
50-54	14.72	9.45	12.15	7.87
55-59	19.11	15.11	13.23	16.87
60-64	18.98	23.94	20.75	24.28
65-69	27.12	35.21	40.55	39.58
70-74	79.07	53.62	51.50	52.54
75-79	96.43	82.23	100.00	93.41
80-84	156.76	114.29	129.41	131.33
85+	200.00	200.0	172.41	197.75

Table 2.2 (cont'd)

Age	Central Region								
	Dufferin	Durham	Haliburton	Halton	Ontario	Peel	Simcoe	Victoria	York[4]
0-4	7.92	4.56	6.67	3.10	3.88	2.69	4.29	7.17	3.66
5-9	0.00	0.00	0.00	0.52	0.34	0.54	0.43	0.00	0.35
10-14	0.00	0.00	0.00	0.09	0.27	0.41	0.61	1.72	0.23
15-19	0.99	1.22	2.27	1.69	0.33	0.45	1.41	4.33	0.96
20-24	0.00	0.57	3.45	1.73	0.69	0.88	3.08	0.83	0.87
25-29	1.42	1.92	12.50	0.44	1.24	0.73	1.23	0.00	0.82
30-34	3.15	0.00	0.00	1.02	1.76	0.57	2.46	3.64	1.30
35-39	0.00	0.74	4.76	1.59	1.03	1.65	2.47	2.35	1.69
40-44	3.42	4.20	13.33	1.97	2.15	2.41	3.11	6.59	3.42
45-49	9.76	2.21	7.69	4.54	7.16	3.53	5.97	4.47	5.19
50-54	3.70	10.00	4.08	6.19	6.85	5.02	10.94	9.09	8.73
55-59	12.90	12.33	12.24	12.46	17.32	12.05	17.35	20.21	12.93
60-64	18.75	28.25	21.05	23.55	24.25	19.67	24.63	22.47	22.54
65-69	27.03	48.23	19.35	28.82	34.65	33.72	36.33	35.09	36.21
70-74	55.17	51.85	57.89	51.61	43.32	40.74	48.67	47.62	53.05
75-79	110.53	44.74	45.45	93.53	107.27	65.79	70.07	79.55	83.86
80-84	145.45	76.19	163.64	115.66	128.07	104.65	118.18	118.18	121.29
85 +	333.33	148.15	440.00	207.41	180.82	200.00	191.92	221.43	192.79

Table 2.2 (cont'd)

Age	Eastern Region							
	Frontenac	Grenville	Hastings	Leeds	Lennox & Addington	Northumberland	Peterborough	Prince Edward
0-4	3.31	5.05	3.06	6.95	5.36	6.04	3.73	1.34
5-9	0.58	1.49	0.55	0.00	0.63	0.00	0.46	0.93
10-14	0.39	1.48	0.84	0.75	1.86	1.09	0.65	1.76
15-19	2.29	1.61	1.90	2.44	0.00	1.20	0.87	2.91
20-24	2.23	1.10	2.07	1.08	1.78	1.08	1.89	1.37
25-29	1.18	0.00	1.38	2.45	0.94	0.00	0.00	5.31
30-34	0.88	4.41	1.44	0.69	2.17	0.82	0.00	3.88
35-39	1.30	2.99	1.98	2.16	1.25	0.74	1.26	4.30
40-44	4.93	7.52	3.36	2.83	5.19	5.30	3.18	0.00
45-49	6.21	7.35	4.82	3.68	2.67	10.00	6.11	5.00
50-54	11.11	8.62	12.15	7.72	6.94	12.00	8.17	6.55
55-59	10.09	29.51	19.47	20.07	18.75	17.80	15.93	19.13
60-64	27.65	16.22	31.52	12.39	20.51	20.00	20.69	27.66
65-69	27.31	20.22	40.43	25.00	37.50	28.88	41.79	42.35
70-74	50.00	43.75	46.85	49.59	48.48	56.30	49.14	46.67
75-79	59.84	75.56	74.03	75.00	50.00	69.88	91.20	91.30
80-84	84.21	111.11	103.45	130.77	126.67	123.64	142.11	104.76
85+	224.49	294.12	180.65	278.79	209.52	242.11	204.00	240.00

Table 2.2 (cont'd)

Age	Ottawa Valley Region							
	Dundas	Glengarry	Lanark	Ottawa-Carleton[5]	Prescott	Renfrew	Russell	Stormont
0-4	1.36	2.82	2.61	4.24	6.28	3.41	2.82	6.44
5-9	1.14	0.00	0.00	0.53	0.63	0.77	0.00	0.30
10-14	0.00	0.00	0.00	0.40	0.53	0.18	1.90	0.28
15-19	0.00	0.98	0.85	0.88	1.19	1.21	2.08	0.91
20-24	4.32	0.00	1.68	0.98	0.88	0.23	5.97	1.15
25-29	1.87	0.00	1.44	1.36	0.00	1.06	0.00	1.05
30-34	0.00	0.00	3.60	1.71	1.36	1.52	2.30	1.23
35-39	4.82	4.65	2.87	1.52	4.23	3.79	0.00	1.87
40-44	0.00	4.60	0.91	2.66	1.42	3.38	2.53	4.71
45-49	4.08	6.19	9.35	4.64	2.82	6.81	2.67	7.78
50-54	12.90	4.00	15.24	7.86	10.45	11.43	18.92	11.53
55-59	11.40	18.37	24.43	15.47	21.31	19.07	16.22	18.13
60-64	20.25	21.18	27.78	23.06	35.40	24.00	30.77	28.69
65-69	38.36	31.71	27.03	40.38	27.96	28.68	43.14	50.83
70-74	48.15	34.48	49.61	55.28	54.24	55.72	68.57	45.59
75-79	81.25	92.68	84.71	77.80	50.00	106.77	84.62	110.84
80-84	109.09	100.00	105.88	131.78	100.00	127.50	40.00	105.26
85+	300.00	173.33	176.47	178.41	160.00	200.00	300.00	288.89

1. Patricia Portion is included.
2. The District of Muskoka became the District Municipality of Muskoka in 1971.
3. The Regional Municipality of Niagara, formerly Lincoln and Welland Counties.
4. Combined data for the Regional Municipality of York and the Municipality of Metropolitan Toronto.
5. Became a Regional Municipality in 1969, including Cumberland Township which had formerly been included in Russell County.

Source: Computed from death data supplied by Statistics Canada, and population data from Statistics Canada, 1971 Census of Canada, Population Age Groups, Bulletin 1.2-3 (Ottawa: Information Canada, 1973), Cat. 92-715, Table 9.

TABLE 2.3

AGE SPECIFIC DEATH RATES FOR COUNTIES, DISTRICTS AND REGIONAL AREAS IN ONTARIO, 1971 - FEMALE

	Northwestern Region		
Age	Kenora	Rainy River	Thunder Bay
0-4	6.83	4.15	3.42
5-9	0.31	0.0	0.28
10-14	0.34	0.69	0.64
15-19	0.79	0.0	0.56
20-24	1.88	0.0	0.49
25-29	2.29	1.36	0.43
30-34	1.27	0.0	1.79
35-39	4.40	0.0	2.31
40-44	1.52	0.0	2.38
45-49	4.36	2.90	4.18
50-54	6.56	5.67	6.61
55-59	7.69	6.90	13.41
60-64	13.75	9.41	14.51
65-69	26.32	10.67	18.18
70-74	38.46	41.38	27.24
75-79	47.46	26.32	61.32
80-84	80.00	51.85	76.12
85+	222.22	189.47	144.19

Table 2.3 (cont'd)

Age	Midnorthern Region		
	Algoma	Manitoulin	Sudbury
0-4	3.43	5.45	3.17
5-9	0.0	1.63	0.42
10-14	0.28	0.0	0.17
15-19	0.83	0.0	0.68
20-24	0.60	5.97	1.23
25-29	0.72	4.00	0.28
30-34	0.81	0.0	0.52
35-39	0.84	7.55	1.79
40-44	2.01	0.0	1.91
45-49	6.48	11.54	4.16
50-54	6.42	0.0	6.80
55-59	9.98	7.41	7.29
60-64	11.11	7.84	16.95
65-69	12.69	13.04	23.15
70-74	31.68	37.84	42.55
75-79	41.73	41.67	37.68
80-84	80.00	80.00	79.01
85+	145.45	233.33	165.22

Table 2.3 (cont'd)

Age	Northeastern Region				
	Cochrane	Muskoka[2]	Nipissing	Parry Sound	Timiskaming
0-4	4.31	1.83	3.61	4.81	5.28
5-9	0.0	0.0	0.42	0.65	0.0
10-14	0.87	0.60	0.0	0.0	0.56
15-19	1.01	0.66	0.49	0.69	0.41
20-24	0.51	0.95	0.0	1.09	0.0
25-29	0.64	1.08	0.39	2.52	1.54
30-34	1.12	0.0	0.40	0.0	0.0
35-39	0.78	2.45	0.86	1.33	4.10
40-44	1.59	1.11	3.71	0.0	2.65
45-49	3.31	5.08	4.12	2.29	0.78
50-54	8.04	4.52	3.45	8.84	6.53
55-59	9.32	4.32	6.98	12.72	6.01
60-64	11.76	11.36	12.15	11.11	9.42
65-69	18.88	15.69	16.00	15.27	15.69
70-74	35.58	27.83	25.64	27.08	31.93
75-79	60.42	38.10	45.05	62.50	44.16
80-84	123.08	78.43	98.51	86.96	91.30
85+	144.44	128.57	148.84	133.33	193.75

Table 2.3 (cont'd)

Age	Western Region					
	Elgin	Essex	Huron	Kent	Lambton	Middlesex
0-4	4.71	2.86	1.92	4.21	3.44	2.23
5-9	0.31	0.26	0.36	0.0	0.34	0.22
10-14	0.32	0.45	0.69	0.57	0.64	0.15
15-19	0.67	0.14	0.81	0.20	0.70	0.39
20-24	1.14	0.53	1.22	0.50	0.46	0.35
25-29	0.48	0.78	0.0	0.92	0.80	0.28
30-34	0.0	0.93	0.0	0.72	0.91	1.14
35-39	1.25	0.48	0.79	1.52	0.92	0.98
40-44	0.55	1.71	2.17	1.82	1.17	1.69
45-49	2.45	3.38	1.41	2.35	5.08	3.20
50-54	8.09	4.34	6.38	5.05	5.50	3.77
55-59	7.60	6.93	6.59	8.77	9.03	7.66
60-64	7.84	10.14	6.56	12.17	14.50	10.48
65-69	18.77	18.08	19.91	22.10	21.97	17.54
70-74	23.68	33.77	27.62	19.93	29.58	29.58
75-79	35.87	45.21	37.24	42.79	54.11	47.27
80-84	91.07	90.03	72.38	102.99	77.86	78.42
85+	191.30	177.78	209.76	171.72	200.0	169.96

Table 2.3 (cont'd)

Age	Midwestern Region						
	Brant	Bruce	Grey	Oxford	Perth	Waterloo	Wellington
0-4	3.18	3.33	4.37	2.21	2.40	2.61	2.63
5-9	0.21	0.41	0.32	0.50	0.00	0.23	0.72
10-14	0.65	0.81	0.59	0.00	0.31	0.08	0.54
15-19	0.22	0.00	1.30	0.26	1.31	0.34	0.40
20-24	0.75	1.42	0.44	0.33	0.42	0.55	0.64
25-29	0.00	1.58	0.00	0.83	0.55	0.70	0.27
30-34	0.00	0.00	0.62	0.00	1.21	0.80	0.66
35-39	1.17	2.64	1.16	0.47	0.64	0.82	1.72
40-44	2.15	3.56	1.61	0.90	2.22	2.03	1.64
45-49	2.02	2.36	2.11	2.53	3.40	2.66	2.93
50-54	6.37	2.38	4.42	3.37	4.14	4.29	4.58
55-59	6.84	7.44	9.21	4.07	4.42	8.15	5.91
60-64	10.76	13.16	6.75	13.26	8.18	8.77	6.90
65-69	23.16	16.51	13.65	19.87	16.19	15.12	12.50
70-74	35.00	23.40	30.89	23.17	28.16	29.59	26.84
75-79	36.04	42.86	62.89	36.63	44.07	42.62	50.00
80-84	78.95	86.42	93.75	95.08	81.08	55.80	73.33
85 +	163.81	163.08	153.33	130.95	174.12	156.22	173.45

Table 2.3 (cont'd)

Age	Niagara Region			
	Haldimand	Niagara[3]	Norfolk	Wentworth
0-4	2.96	3.42	3.69	2.86
5-9	0.0	0.23	1.21	0.48
10-14	0.58	0.22	0.37	0.20
15-19	3.18	0.48	0.76	0.38
20-24	1.84	0.74	0.0	0.17
25-29	0.0	0.35	2.40	0.43
30-34	0.0	0.50	2.74	0.78
35-39	2.33	1.47	2.65	1.01
40-44	2.26	1.02	3.25	1.95
45-49	3.51	3.20	1.89	1.99
50-54	3.64	5.41	5.15	4.13
55-59	6.54	5.96	5.99	6.77
60-64	10.22	7.42	13.50	10.66
65-69	10.17	14.69	15.52	16.79
70-74	32.99	26.86	29.09	26.88
75-79	51.28	48.81	37.93	53.17
80-84	47.62	88.94	127.27	73.88
85+	235.29	143.15	159.09	146.85

Table 2.3 (cont'd)

Age	Central Region								
	Dufferin	Durham	Haliburton	Halton	Ontario	Peel	Simcoe	Victoria	York[4]
0-4	4.62	1.58	0.00	2.60	3.58	2.69	3.42	8.13	2.87
5-9	0.00	0.38	0.00	0.45	0.44	0.13	0.35	1.22	0.32
10-14	0.00	0.00	0.00	0.46	0.09	0.29	0.22	0.59	0.28
15-19	1.08	0.00	2.41	0.47	0.57	0.57	0.72	0.00	0.33
20-24	1.49	0.00	0.00	0.72	0.82	0.54	0.91	1.85	0.35
25-29	0.00	0.66	0.00	0.27	0.66	0.44	0.36	3.28	0.42
30-34	4.69	0.00	4.88	0.15	0.45	0.97	0.86	0.00	0.92
35-39	3.51	0.00	0.00	1.63	1.25	1.07	1.76	0.00	1.05
40-44	3.57	1.46	4.35	2.62	1.81	1.47	2.40	0.00	2.37
45-49	3.51	3.75	0.00	2.32	3.48	2.39	3.04	4.02	2.97
50-54	1.90	4.29	0.00	4.35	4.06	5.48	5.77	11.06	3.99
55-59	6.32	1.93	7.41	9.16	6.08	7.23	6.89	5.13	7.03
60-64	9.52	10.13	0.00	8.39	11.06	9.03	11.58	10.42	11.02
65-69	21.33	13.84	25.53	19.02	19.81	12.69	18.21	14.86	16.77
70-74	29.03	17.05	21.62	30.82	26.38	30.57	27.03	39.72	25.30
75-79	56.00	65.35	81.82	51.82	57.04	44.44	42.05	50.47	43.33
80-84	86.67	75.36	114.29	56.12	100.55	83.87	86.46	103.03	72.66
85 +	146.67	120.83	125.00	146.15	180.42	127.12	167.63	187.23	158.99

Table 2.3 (cont'd)

Age	Eastern Region							
	Frontenac	Grenville	Hastings	Leeds	Lennox & Addington	Northumberland	Peterborough	Prince Edward
0-4	5.31	6.56	4.35	4.76	2.44	1.69	3.20	2.63
5-9	0.60	0.79	0.19	0.42	2.05	0.00	0.48	0.95
10-14	0.20	0.00	0.18	0.00	0.00	0.40	0.22	1.81
15-19	0.21	0.00	0.60	2.15	0.77	1.37	0.47	0.99
20-24	0.19	1.21	0.79	0.00	0.00	0.60	0.55	0.00
25-29	0.00	4.00	0.69	0.64	0.00	0.00	0.73	1.83
30-34	0.00	0.00	0.00	1.41	0.00	0.78	1.29	0.00
35-39	0.00	6.15	2.41	1.53	2.70	0.00	0.42	0.00
40-44	1.79	0.00	1.72	0.70	1.35	0.76	1.14	5.50
45-49	2.97	1.42	4.72	1.36	0.00	5.41	1.74	3.05
50-54	3.19	0.00	3.79	6.43	6.11	3.73	3.55	0.00
55-59	4.33	8.40	7.96	7.33	9.92	8.59	6.59	9.09
60-64	11.17	9.35	12.12	12.55	12.96	10.23	8.60	10.31
65-69	13.10	8.60	17.18	25.00	16.49	24.74	16.11	15.91
70-74	22.22	28.21	35.74	27.27	33.33	26.25	25.60	16.67
75-79	28.43	40.63	49.00	43.80	45.61	39.32	53.61	50.00
80-84	77.14	70.27	71.53	73.81	43.90	90.00	74.24	83.33
85+	157.58	151.52	161.70	151.61	137.50	164.18	183.67	226.67

Table 2.3 (cont'd)

Age	Ottawa Valley Region							
	Dundas	Glengarry	Lanark	Ottawa-Carleton	Prescott	Renfrew	Russell	Stormont
0-4	6.76	4.20	4.65	2.90	5.66	4.89	5.41	3.20
5-9	0.00	0.00	1.02	0.52	0.00	0.59	2.04	0.00
10-14	2.26	0.95	0.00	0.25	0.60	0.00	1.98	0.28
15-19	1.19	0.00	0.46	0.58	0.68	0.86	1.19	0.60
20-24	0.00	4.88	0.00	0.34	0.00	0.32	0.00	0.00
25-29	0.00	0.00	0.00	0.32	0.00	0.35	1.79	1.06
30-34	0.00	0.00	0.96	0.74	1.43	0.40	2.44	0.60
35-39	2.35	2.56	0.00	1.56	1.32	1.90	0.00	1.18
40-44	2.17	2.22	0.95	2.13	1.43	3.14	0.00	1.70
45-49	0.00	0.00	0.00	3.15	5.23	3.61	2.50	1.13
50-54	7.06	4.21	5.33	4.73	2.94	4.13	9.23	5.71
55-59	13.19	4.30	5.29	7.35	1.65	7.63	0.00	7.33
60-64	10.67	10.39	17.89	12.94	9.35	8.20	18.52	16.80
65-69	25.00	27.03	21.97	18.28	12.63	19.29	34.78	25.35
70-74	9.52	10.53	40.00	26.67	28.17	25.66	45.00	31.37
75-79	60.00	36.73	47.06	46.89	44.00	47.56	32.26	30.65
80-84	76.47	88.89	101.30	86.13	80.00	81.82	114.29	92.50
85 +	114.29	138.46	166.09	154.52	220.00	137.84	176.47	220.69

1. Patricia Portion is included.
2. The District of Muskoka became the District Municipality of Muskoka in 1971.
3. The Regional Municipality of Niagara, formerly Lincoln and Welland Counties.
4. Combined data for the Regional Municipality of York and the Municipality of Metropolitan Toronto.
5. Became a Regional Municipality in 1969, including Cumberland Township which had formerly been included in Russell County.

Source: Computed from death data supplied by Statistics Canada, and population data from Statistics Canada, 1971 Census of Canada, Population Age Groups, Bulletin 1.2-3 (Ottawa: Information Canada, 1973, Cat. 92-715, Table 9.

TABLE 2.4

INFANT MORTALITY RATES FOR ONTARIO BY EDUCATION REGION, 1971

County, District or Regional Area	Infant Mortality Rate		
	Total	Male	Female
Northwestern Region	22.101	25.294	18.607
Kenora[1]	25.437	23.697	27.200
Rainy River	26.859	31.008	22.124
Thunder Bay	19.645	24.964	13.655
Midnorthern Region	14.633	16.297	12.863
Algoma	13.496	14.011	12.987
Manitoulin	22.099	22.472	21.739
Sudbury	14.919	17.182	12.405
Northeastern Region	20.766	21.864	19.550
Cochrane	22.620	24.742	20.408
Muskoka[2]	12.959	16.327	9.174
Nipissing	19.341	21.739	16.667
Parry Sound	26.432	28.000	24.510
Timiskaming	20.107	14.778	26.471
Western Region	15.063	18.017	11.903
Elgin	23.343	24.209	22.472
Essex	13.548	14.599	12.411
Huron	17.413	28.708	5.181
Kent	15.590	18.398	12.615
Lambton	15.593	16.277	14.878
Middlesex	14.174	13.360	8.558
Midwestern Region	14.609	17.769	11.261
Brant	14.841	13.123	16.845
Bruce	11.034	12.887	8.902
Grey	18.237	17.787	18.711
Oxford	16.051	26.984	4.870
Perth	14.014	18.789	9.615
Waterloo	14.499	18.175	10.678
Wellington	13.577	15.889	11.013
Niagara Region	16.014	17.684	14.263
Haldimand	15.326	23.166	7.605
Niagara[3]	16.438	16.770	16.105
Norfolk	18.913	19.651	18.041
Wentworth	15.289	17.744	12.641
Central Region	13.363	14.821	11.823
Dufferin	29.175	33.333	23.952
Durham	16.035	22.599	9.036
Haliburton	17.857	36.364	0.0
Halton	10.809	11.150	10.430
Ontario	16.288	16.843	15.748
Peel	12.746	13.943	11.480
Simcoe	16.503	18.843	13.950
Victoria	27.897	28.112	27.650
York[4] (includes Toronto)	12.781	14.216	11.269

Table 2.4 (cont'd)

County, District or Regional Area	Infant Mortality Rate		
	Total	Male	Female
Eastern Region	18.143	19.794	16.463
Frontenac	17.281	16.279	18.265
Grenville	27.439	17.046	39.474
Hastings	15.717	15.769	15.666
Leeds	26.185	30.023	21.680
Lennox & Addington	15.385	20.661	9.390
Northumberland	21.180	34.700	6.721
Peterborough	16.579	18.045	15.106
Prince Edward	7.299	7.519	7.092
Ottawa Valley Region	16.624	17.348	15.850
Dundas	15.267	7.813	22.388
Glengarry	15.326	7.143	24.793
Lanark	14.950	9.967	19.934
Ottawa-Carleton 5	15.086	17.286	12,683
Prescott	32.746	34.146	31.250
Renfrew	18.106	13.605	22.825
Russell	14.337	0.0	26.144
Stormont	22.129	30.992	12.903
ONTARIO 6	15.147	16.978	13.207

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5. Became a Regional Municipality in 1969, including Cumberland Township which had formerly been included in Russell County.

6. See Appendix for full listing of census divisions and subdivisions to which 1971 data relate.

Source: Based on data in Province of Ontario, Vital Statistics, 1971 (Toronto: Office of the Registrar General), Tables 1 and 19.

TABLE 2.5

PROPORTIONATE AGE MORTALITY* IN ONTARIO FOR THE YEARS 1956, 1961, 1966 AND 1971

YEAR	MALE	FEMALE	TOTAL
1956	78.10	81.59	79.60
1961	78.68	82.56	80.33
1966	81.03	84.53	82.52
1971	81.84	85.37	83.63

* Defined as the number of deaths at ages 50 and over as a percentage of total deaths. As people live longer due to declining mortality, more people will be in the 50 and over category, providing off-setting changes do not occur in fertility or migration. Consequently, more deaths will occur to persons aged 50 and over. The proportion of deaths to persons aged 50 and over is therefore one indicator of the rate of progress in controlling mortality.

Source: Computed from death data in Province of Ontario, Vital Statistics 1956, 1961, 1966 and 1971 (Toronto: Office of the Registrar General.

TABLE 2.6

PROPORTIONATE AGE MORTALITY* FOR COUNTIES, DISTRICTS AND REGIONAL AREAS BY EDUCATION REGIONS, ONTARIO, 1971

County, District or Regional Area	Male	Female	Total
Northwestern Region	78.25	79.01	78.54
Kenora[1]	67.80	69.08	68.30
Rainy River	75.49	86.57	79.88
Thunder Bay	81.93	81.25	81.67
Midnorthern Region	73.34	74.50	73.74
Algoma	77.71	76.09	77.12
Manitoulin	77.38	76.47	77.04
Sudbury	70.13	73.09	71.12
Northeastern Region	81.22	83.35	81.98
Cochrane	78.11	78.66	78.29
Muskoka[2]	86.63	88.62	87.38
Nipissing	76.50	81.03	78.13
Parry Sound	85.86	89.60	87.31
Timiskaming	85.55	84.35	85.11
Western Region	82.84	88.55	85.32
Elgin	85.80	90.10	87.77
Essex	82.39	88.03	84.79
Huron	87.84	92.92	90.11
Kent	81.69	88.33	84.52
Lambton	83.86	85.29	84.50
Middlesex	81.28	89.00	84.66
Midwestern Region	83.00	88.60	85.41
Brant	86.21	90.46	88.09
Bruce	85.86	88.94	87.11
Grey	86.77	90.74	88.53
Oxford	82.46	91.88	86.06
Perth	83.88	89.92	86.65
Waterloo	78.56	85.33	81.49
Wellington	83.16	87.36	84.99
Niagara Region	84.03	87.15	85.34
Haldimand	84.77	84.92	84.83
Niagara[3]	83.51	86.32	84.69
Norfolk	81.79	83.50	82.48
Wentworth	84.78	88.64	86.43
Central Region	81.40	85.29	83.13
Dufferin	83.33	83.15	83.25
Durham	86.46	91.24	88.45
Haliburton	80.00	91.89	84.31
Halton	76.47	78.92	77.54
Ontario	81.02	83.48	82.12
Peel	72.45	76.17	74.16
Simcoe	82.18	87.06	84.25
Victoria	85.04	88.66	86.68
York[4] (includes Toronto)	81.99	86.04	83.80

Table 2.6 (cont'd)

County, District or Regional Area	Male	Female	Total
Eastern Region	83.29	87.67	85.17
Frontenac	77.78	85.66	81.13
Grenville	80.58	82.61	81.39
Hastings	84.10	85.27	84.60
Leeds	83.98	89.10	86.30
Lennox and Addington	83.45	89.13	85.71
Northumberland	84.62	91.18	87.42
Peterborough	86.27	89.97	87.90
Prince Edward	85.94	87.76	86.73
Ottawa Valley Region	82.22	86.29	84.03
Dundas	89.25	86.67	88.10
Glengarry	89.80	86.96	88.62
Lanark	88.02	94.20	89.76
Ottawa-Carleton 5	79.93	85.53	82.57
Prescott	83.21	82.14	82.79
Renfrew	82.22	81.95	82.12
Russell	81.61	82.61	82.05
Stormont	84.64	91.38	87.41
ONTARIO[6]	81.84	85.87	83.63

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* Defined as the number of deaths at ages 50 and over as percentage of total deaths. See note to Table 2.5.

1. Patricia Portion is included.
2. The District of Muskoka became the District Municipality of Muskoka in 1971.
3. The Regional Municipality of Niagara, formerly Lincoln and Welland Counties.
4. Combined data for the Regional Municipality of York and the Municipality of Metropolitan Toronto.
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6. See Appendix for full listing of census divisions and subdivisions to which 1971 data relate.

Source: Computed from death data by age for counties, districts and regional areas provided by Statistics Canada and the Office of the Registrar General for Ontario.

TABLE 2.7

PERCENT CHANGE IN THE MAJOR CAUSES OF DEATH BY SEX FOR ONTARIO

Causes of Death	1956-61			1961-66			1966-71		
	Male	Female	Total	Male	Female	Total	Male	Female	Total
Diseases of Circulatory System	+10.84	+ 9.17	+10.16	+ 7.10	+ 9.81	+ 8.19	+20.54	+38.65	+27.92
Neoplasms (cancer, etc.)	+14.29	+ 6.49	+10.62	+12.67	+11.96	+12.35	+15.57	+14.30	+15.00
Accidents, Poisoning and violence	+ 6.02	+ 4.98	+ 5.71	+11.76	+16.03	+13.03	+13.16	+17.61	+14.52
Diseases of the Respiratory system	+ 4.53	+ 8.20	+ 6.01	+34.26	+14.26	+26.05	+ 4.07	+ 3.95	+ 4.03
Diseases of the Digestive system [1]	+27.79	+31.89	+29.50	+ 2.42	+ 7.94	+ 4.76	+18.33	+ 5.02	+12.51
Endocrine, Nutritional & metabolic diseases	+ 6.94	- 3.38	+ 1.37	+14.47	+14.51	+14.49	- 9.40	+ 5.19	- 1.89
Certain causes of perinatal mortality	+ 3.33	- 0.57	+ 1.69	-24.25	-24.23	-24.24	-33.62	-36.36	-34.75
Other	+ 0.33	+ 2.68	+ 1.51	- 5.91	- 6.24	- 6.08	-62.17	-69.70	-66.00
Total	+ 8.86	+ 6.81	+ 7.97	+ 6.48	+ 5.89	+ 6.22	+ 3.96	+ 5.30	+ 4.53

1. The diseases of blood-forming organs have been included with diseases of the digestive system for the year 1971 to conform with the classification in previous years.

Source: Computed from Province of Ontario Vital Statistics 1956, 1961, 1966 and 1971 (Toronto: Office of the Registrar General), respective tables on causes of death.

TABLE 2.8

PERCENT DISTRIBUTION OF CAUSES OF DEATH BY SEX FOR COUNTIES, DISTRICTS AND REGIONAL AREAS IN EDUCATION REGIONS, 1971

County, District or Regional Area	Diseases of the Circulatory System	Neoplasms	Accidents Poisoning and Violence	Diseases of the Respiratory System	Diseases of the Digestive System	Endocrine, Nutritional & Metabolic Diseases	Certain Causes of Perinatal Mortality	Other	Total
Northwestern Region									
Kenora[1]									
Male	34.2	15.4	26.5	7.7	5.0	1.5	1.9	7.8	100.0
Female	30.4	13.7	17.3	13.7	6.5	2.4	4.2	11.8	100.0
Total	32.7	14.7	22.9	10.0	5.6	1.9	2.8	9.4	100.0
Rainy River									
Male	43.5	16.5	11.3	11.3	3.5	5.2	3.5	5.2	100.0
Female	50.7	19.7	5.6	12.7	-	2.8	2.8	5.7	100.0
Total	46.2	17.7	9.1	11.8	2.2	4.3	3.2	5.5	100.0
Thunder Bay									
Male	52.8	16.2	10.7	7.2	3.4	2.2	2.6	4.9	100.0
Female	51.0	18.6	8.8	6.1	3.3	2.8	2.0	7.4	100.0
Total	52.1	17.1	9.9	6.8	3.4	2.5	2.4	5.8	100.0
Midnorthern Region									
Algoma									
Male	51.4	16.1	13.4	7.3	4.5	0.8	1.6	4.9	100.0
Female	53.2	18.6	9.3	5.0	3.6	1.8	2.1	6.4	100.0
Total	52.1	17.0	11.9	6.5	4.1	1.2	1.8	5.4	100.0
Manitoulin									
Male	54.1	11.8	22.4	2.4	2.4	1.2	-	5.7	100.0
Female	58.8	7.8	15.7	3.9	3.9	2.0	2.0	5.9	100.0
Total	55.9	10.3	19.9	2.9	2.9	1.5	0.7	5.9	100.0
Sudbury									
Male	44.9	16.3	18.9	5.5	3.5	1.2	2.6	7.1	100.0
Female	44.6	22.7	9.4	3.9	6.0	2.9	4.4	6.1	100.0
Total	44.8	18.5	15.8	5.0	4.4	1.7	3.2	6.6	100.0

Table 2.8 (cont'd)

County, District or Regional Area	Diseases of the Circulatory System	Neoplasms	Accidents Poisoning and Violence	Diseases of the Respiratory System	Diseases of the Digestive System	Endocrine, Nutritional & Metabolic Diseases	Certain Cause of Perinatal Mortality	Other	Total
Northeastern Region									
Cochrane									
Male	45.1	17.4	13.4	8.2	4.0	1.9	3.1	6.9	100.0
Female	47.1	19.0	7.9	3.7	7.4	1.7	4.1	9.1	100.0
Total	45.8	17.9	11.5	6.7	5.1	1.8	3.5	7.7	100.0
Muskoka ^{2}									
Male	57.4	12.7	8.8	10.8	2.5	1.5	1.5	4.8	100.0
Female	49.2	21.0	6.5	10.5	6.5	0.8	0.8	4.7	100.0
Total	54.3	15.9	7.9	10.7	4.0	1.2	1.2	4.8	100.0
Nipissing									
Male	54.8	15.3	13.1	6.0	3.7	1.4	1.7	4.0	100.0
Female	49.7	18.5	6.7	6.7	3.1	4.6	4.1	6.6	100.0
Total	53.0	16.5	10.8	6.2	3.5	2.6	2.6	4.8	100.0
Parry Sound									
Male	55.3	11.1	11.6	7.5	3.0	3.5	2.0	6.0	100.0
Female	50.8	19.0	11.9	5.6	3.2	2.4	1.6	5.5	100.0
Total	53.5	14.2	11.7	6.8	3.1	3.1	1.8	5.8	100.0
Timiskaming									
Male	54.7	17.1	11.2	6.6.	2.7	1.6	0.8	5.3	100.0
Female	56.1	17.6	6.8	2.7	2.0	4.7	2.0	8.1	100.0
Total	55.2	17.2	9.6	5.2	2.5	2.7	1.2	6.4	100.0
Western Region									
Elgin									
Male	50.4	18.7	9.5	7.5	3.7	2.9	2.9	4.4	100.0
Female	61.0	13.9	5.1	4.7	5.4	3.4	1.7	4.8	100.0
Total	55.3	16.5	7.5	6.2	4.5	3.1	2.3	4.6	100.0
Essex									
Male	52.8	19.0	9.8	6.4	3.7	1.7	1.6	5.0	100.0
Female	56.3	18.5	5.8	6.0	3.9	2.7	1.7	5.1	100.0
Total	54.3	18.8	8.1	6.2	3.8	2.1	1.7	5.0	100.0

Table 2.8 (cont'd)

County, District or Regional Area	Diseases of the Circulatory System	Neoplasms	Accidents Poisoning and Violence	Diseases of the Respiratory System	Diseases of the Digestive System	Endocrine, Nutritional & Metabolic Diseases	Certain Causes of Perinatal Mortality	Other	Total
Huron									
Male	57.2	15.5	11.4	6.1	2.7	0.7	2.4	4.0	100.0
Female	60.4	18.3	5.8	5.0	1.7	2.5	-	6.3	100.0
Total	58.7	16.8	8.9	5.6	2.2	1.5	1.3	5.0	100.0
Kent									
Male	55.6	13.0	12.6	5.7	4.7	2.0	2.6	3.8	100.0
Female	55.4	19.6	6.6	5.3	1.6	5.8	1.3	4.4	100.0
Total	55.5	15.8	10.0	5.5	3.4	3.6	2.0	4.2	100.0
Lambton									
Male	52.8	19.1	9.8	7.7	2.6	1.8	2.0	4.2	100.0
Female	50.5	17.2	8.6	6.7	3.4	3.9	1.5	8.2	100.0
Total	51.8	18.3	9.3	7.2	3.0	2.7	1.7	6.0	100.0
Middlesex									
Male	48.4	18.2	9.8	9.9	3.1	2.6	2.1	5.9	100.0
Female	53.8	19.5	7.4	6.3	2.9	3.4	1.0	5.7	100.0
Total	50.8	18.8	8.7	8.3	3.0	3.0	1.6	5.8	100.0
Midwestern Region									
Brant									
Male	56.1	18.5	8.0	6.7	4.5	0.9	0.9	4.4	100.0
Female	54.1	21.4	4.1	6.2	3.5	3.0	1.4	6.3	100.0
Total	55.2	19.8	6.2	6.5	4.1	1.8	1.1	5.3	100.0
Bruce									
Male	61.2	13.2	10.9	4.9	3.3	1.0	1.3	4.2	100.0
Female	57.1	20.5	7.1	4.8	2.4	2.4	0.5	5.2	100.0
Total	59.5	16.1	9.3	4.9	2.9	1.6	1.0	4.7	100.0
Grey									
Male	52.8	16.5	13.2	8.4	3.8	0.8	1.3	3.2	100.0
Female	54.6	16.6	4.5	7.3	4.5	2.2	1.3	9.0	100.0
Total	53.6	16.5	9.3	7.9	4.1	1.4	1.3	5.9	100.0

Table 2.8 (cont'd)

County, District or Regional Area	Diseases of the Circulatory System	Neoplasms	Accidents Poisoning and Violence	Diseases of the Respiratory System	Diseases of the Digestive System	Endocrine, Nutritional & Metabolic Diseases	Certain Causes of Perinatal Mortality	Other	Total
Oxford									
Male	51.4	18.2	10.8	6.1	5.2	0.7	1.8	5.8	100.0
Female	62.7	17.3	6.3	2.2	4.4	1.8	0.4	4.9	100.0
Total	55.7	17.9	9.1	4.6	4.9	1.1	1.3	5.4	100.0
Perth									
Male	51.6	20.4	11.2	6.6	4.6	2.6	1.0	2.0	100.0
Female	60.5	16.3	7.0	7.0	3.5	1.6	1.2	2.9	100.0
Total	55.7	18.5	9.3	6.8	4.1	2.1	1.1	2.4	100.0
Waterloo									
Male	49.0	16.7	12.3	6.3	4.0	3.0	3.6	5.1	100.0
Female	51.6	23.4	5.7	5.6	2.5	2.9	1.9	6.4	100.0
Total	50.1	19.6	9.5	6.0	3.4	3.0	2.9	5.5	100.0
Wellington									
Male	49.9	18.9	12.5	7.2	2.3	2.8	2.5	3.9	100.0
Female	59.6	17.0	6.3	4.9	2.7	2.7	1.4	5.4	100.0
Total	54.1	18.1	9.8	6.2	2.5	2.8	2.0	4.5	100.0
Niagara Region									
Haldimand									
Male	56.4	18.8	9.6	4.6	3.0	2.5	1.5	3.6	100.0
Female	56.4	16.7	12.7	4.8	2.4	3.2	0.8	3.0	100.0
Total	56.3	18.0	10.8	4.6	2.8	2.8	1.2	3.5	100.0
Niagara[3]									
Male	51.9	19.2	9.7	6.3	3.9	1.5	2.0	5.5	100.0
Female	55.2	20.1	6.1	3.8	3.9	3.1	2.0	5.8	100.0
Total	53.3	19.6	8.2	5.3	3.9	2.2	2.0	5.5	100.0
Norfolk									
Male	48.2	20.0	12.8	7.2	3.0	3.3	1.6	3.9	100.0
Female	60.9	17.4	4.8	5.3	3.4	2.9	2.9	2.4	100.0
Total	53.3	18.9	9.6	6.4	3.1	3.1	2.1	3.5	100.0

Table 2.8 (cont'd)

County, District or Regional Area	Diseases of the Circulatory System	Neoplasms	Accidents Poisoning and Violence	Diseases of the Respiratory System	Diseases of the Digestive System	Endocrine, Nutritional & Metabolic Diseases	Certain Causes of Perinatal Mortality	Other	Total
Wentworth									
Male	49.9	21.7	8.5	6.9	4.5	1.6	1.5	5.4	100.0
Female	58.2	20.8	4.2	3.8	3.8	2.3	1.7	5.2	100.0
Total	53.5	21.3	6.6	5.6	4.2	1.9	1.6	5.3	100.0
Central Region									
Dufferin									
Male	54.5	13.2	8.3	9.9	4.1	1.7	5.0	3.3	100.0
Female	56.2	9.0	6.7	2.2	7.9	6.7	1.1	10.2	100.0
Total	55.2	11.4	7.6	6.7	5.7	3.8	3.3	6.3	100.0
Durham									
Male	56.0	16.6	7.3	7.3	4.7	2.1	2.6	3.4	100.0
Female	62.6	15.1	4.3	7.2	2.9	0.7	0.7	6.5	100.0
Total	58.7	16.0	6.0	7.2	3.9	1.5	1.8	4.9	100.0
Haliburton									
Male	60.6	16.7	9.1	9.1	-	-	1.5	3.0	100.0
Female	62.2	21.6	5.4	5.4	2.7	-	-	2.7	100.0
Total	61.2	18.4	7.8	7.8	1.0	-	1.0	2.8	100.0
Halton									
Male	47.8	20.5	14.1	4.3	4.7	1.3	2.3	5.0	100.0
Female	50.5	24.6	8.3	2.7	3.9	1.2	1.2	7.6	100.0
Total	49.0	22.3	11.6	3.6	4.4	1.3	1.8	6.0	100.0
Ontario									
Male	56.9	17.3	10.2	6.4	2.4	1.1	1.4	4.3	100.0
Female	54.4	20.8	7.6	5.5	2.4	2.1	1.7	5.5	100.0
Toronto	55.8	18.8	9.0	6.0	2.4	1.6	1.6	4.8	100.0
Peel									
Male	46.0	20.2	14.6	5.2	2.4	2.6	2.2	6.8	100.0
Female	49.8	23.5	7.7	4.9	2.4	1.8	2.2	7.7	100.0
Total	47.7	21.7	11.4	5.1	2.4	2.2	2.2	7.3	100.0

Table 2.8 (cont'd)

County, District or Regional Area	Diseases of the Circulatory System	Neoplasms	Accidents Poisoning and Violence	Diseases of the Respiratory System	Diseases of the Digestive System	Endocrine, Nutritional & Metabolic Diseases	Certain Causes of Perinatal Mortality	Other	Total
Simcoe									
Male	52.7	17.6	11.8	6.6	3.7	1.7	2.5	3.4	100.0
Female	56.8	19.3	6.3	4.3	2.7	3.4	2.3	4.9	100.0
Total	54.5	18.3	9.5	5.6	3.3	2.4	2.4	4.0	100.0
Victoria									
Male	46.4	19.6	13.6	8.9	3.4	3.0	2.1	3.0	100.0
Female	54.1	20.1	7.7	6.7	3.6	1.5	1.5	4.8	100.0
Total	49.9	19.8	11.0	7.9	3.5	2.3	1.9	3.7	100.0
York 4									
Male	52.9	19.1	11.1	4.8	2.9	0.8	1.7	6.7	100.0
Female	49.3	20.0	6.9	4.9	2.7	3.1	1.3	11.8	100.0
Total	51.2	19.5	9.2	4.8	2.8	1.9	1.5	9.1	100.0
Toronto 5									
Male	48.9	22.3	8.9	6.4	4.3	1.7	1.7	5.8	100.0
Female	51.6	23.0	6.3	5.2	3.5	3.1	1.7	5.6	100.0
Total	50.1	22.6	7.7	5.8	3.9	2.3	1.7	5.9	100.0
Eastern Region									
Frontenac									
Male	49.2	15.1	15.1	9.0	3.6	1.0	1.8	5.2	100.0
Female	57.1	14.6	4.2	11.5	3.1	1.4	3.5	4.6	100.0
Total	52.6	14.9	10.5	10.0	3.4	1.2	2.5	4.9	100.0
Grenville									
Male	50.4	17.3	10.8	6.5	7.2	2.9	-	4.9	100.0
Female	48.9	19.6	5.4	10.9	2.2	5.4	2.2	5.4	100.0
Total	49.8	18.2	8.7	8.2	5.2	3.9	0.9	5.1	100.0
Hastings									
Male	52.0	16.2	11.6	10.2	2.3	1.2	1.7	4.8	100.0
Female	52.5	19.5	8.2	5.9	4.2	3.4	0.9	5.4	100.0
Total	52.2	17.6	10.2	8.4	3.1	2.2	1.3	5.0	100.0

Table 2.8 (cont'd)

County, District or Regional Area	Diseases of the Circulatory System	Neoplasms	Accidents Poisoning and Violence	Diseases of the Respiratory System	Diseases of the Digestive system	Endocrine, Nutritional & Metabolic Diseases	Certain Causes of Perinatal Mortality	Other	Total
Leeds									
Male	56.3	18.4	9.0	5.9	2.7	1.6	3.1	3.0	100.0
Female	60.7	15.4	7.0	5.1	3.3	1.4	1.4	5.7	100.0
Total	58.3	17.0	8.1	5.5	3.0	1.5	2.3	4.3	100.0
Lennox & Addington									
Male	51.8	11.5	10.8	10.1	4.3	0.7	1.4	9.4	100.0
Female	46.7	21.7	8.7	9.8	3.3	4.4	-	5.4	100.0
Total	49.8	15.6	10.0	10.0	3.9	2.2	0.9	7.6	100.0
Northumberland									
Male	55.1	14.6	12.8	6.6	2.6	1.5	2.9	3.9	100.0
Female	63.2	15.7	6.9	2.5	1.0	4.9	1.0	4.8	100.0
Total	58.6	15.1	10.3	4.8	1.9	2.9	2.1	4.3	100.0
Peterborough									
Male	52.1	18.0	9.3	9.3	5.6	1.0	1.7	3.0	100.0
Female	55.3	21.6	4.4	6.3	3.4	3.1	1.3	4.6	100.0
Total	53.5	19.6	7.1	7.9	4.7	1.9	1.5	3.8	100.0
Prince Edward									
Male	50.8	16.4	15.6	10.9	2.3	-	-	4.0	100.0
Female	55.1	17.3	6.1	6.1	2.0	2.0	-	11.4	100.0
Total	52.7	16.8	11.5	8.8	2.2	0.9	-	7.1	100.0
Ottawa Valley Region									
Dundas									
Male	61.1	16.8	6.3	4.2	1.1	4.2	1.1	5.2	100.0
Female	46.7	22.7	9.3	6.7	1.3	1.3	4.0	8.0	100.0
Total	54.7	19.4	7.7	5.3	1.2	2.9	2.4	6.4	100.0
Glengarry									
Male	52.0	22.0	5.0	9.0	3.0	2.0	-	7.0	100.0
Female	52.9	21.4	10.0	8.6	-	-	2.9	4.2	100.0
Total	52.4	21.8	7.1	8.8	1.8	1.2	1.2	5.7	100.0

Table 2.8 (cont'd)

County, District or Regional Area	Diseases of the Circulatory System	Neoplasms	Accidents, Poisoning and Violence	Diseases of the Respiratory System	Diseases of the Digestive System	Endocrine, Nutritional & Metabolic Diseases	Certain Causes of Perinatal Mortality	Other	Total
Lanark									
Male	57.4	18.0	7.0	6.1	3.3	2.5	1.2	4.5	100.0
Female	59.3	18.7	5.3	6.7	1.4	1.4	1.0	6.2	100.0
Total	58.3	18.3	6.2	6.4	2.4	2.0	1.1	5.3	100.0
Ottawa-Carleton[6]									
Male	50.8	17.8	10.8	6.3	4.1	1.5	2.1	6.6	100.0
Female	55.0	22.3	5.9	4.0	3.0	2.8	1.5	4.9	100.0
Total	52.8	19.9	8.5	5.5	3.6	2.1	1.8	5.8	100.0
Prescott									
Male	47.8	19.4	13.4	7.5	3.0	0.7	3.7	4.5	100.0
Female	47.1	17.2	4.6	9.2	1.2	2.3	4.6	13.8	100.0
Total	47.5	18.6	10.0	8.1	2.3	1.4	4.1	8.0	100.0
Renfrew									
Male	51.6	15.5	12.0	8.5	3.7	1.7	1.7	5.3	100.0
Female	48.7	20.2	6.1	8.7	3.2	1.8	2.9	8.4	100.0
Total	50.5	17.3	9.8	8.6	3.5	1.8	2.2	6.3	100.0
Russell									
Male	54.0	13.8	17.2	9.2	3.5	-	-	2.3	100.0
Female	47.8	14.5	13.0	5.8	4.4	2.9	2.9	8.7	100.0
Total	51.3	14.1	15.4	7.7	3.8	1.3	1.3	5.1	100.0
Stormont									
Male	51.5	14.2	7.7	11.2	3.3	3.0	2.1	7.0	100.0
Female	55.2	14.7	3.9	9.9	4.3	4.3	1.3	6.4	100.0
Total	53.0	14.4	6.1	10.7	3.7	3.5	1.8	6.8	100.0

Table 2.8 (cont'd)

1. Kenora including Patricia Portion.
2. District of Muskoka formed into the District Municipality of Muskoka, January 1, 1971.
3. The Regional Municipality of Niagara, formerly Lincoln and Welland Counties.
4. York County excluding Municipality of Metropolitan Toronto, formed into the Regional Municipality of York, January 1, 1971.
5. Metropolitan Toronto deleted from York County, renamed Municipality of Metropolitan Toronto, January 1, 1971.
6. Regional Municipality, including Cumberland Township.

Source: Computed from data in Province of Ontario, Vital Statistics 1971 (Toronto: Office of the Registrar General), Table 28.

TABLE 2.9

ABRIDGED LIFE TABLES FOR ONTARIO, 1971

MALES

Age Groups	px	lx	Lx	Tx	e_x
0-1	0.979482	100000	98165	6955515	69.555
1-4	0.997160	97948	391097	6857351	70.010
5-9	0.997572	97670	487758	6466254	66.205
10-14	0.997929	97433	486737	5978497	61.360
15-19	0.993773	97231	484753	5491761	56.482
20-24	0.992369	96626	481276	5007008	51.819
25-29	0.994129	95888	478025	4525733	47.198
30-34	0.992693	95325	474969	4047708	42.462
35-39	0.989800	94629	470913	3572739	37.755
40-44	0.983229	93664	464715	3101826	33.117
45-49	0.972619	92093	454671	2637111	28.635
50-54	0.955041	89571	438556	2182440	24.365
55-59	0.927459	85544	413228	1743885	20.386
60-64	0.887510	79339	375557	1330658	16.772
65-69	0.831769	70414	323481	955102	13.564
70-74	0.763529	58568	258952	631621	10.784
75-79	0.656074	44718	185138	372668	8.334
80-84	0.528608	29339	111088	187530	6.392
85+	0.326999	15509	76442	76442	4.929

FEMALES

Age Groups	px	lx	Lx	Tx	e_x
0-1	0.983994	100000	98556	7688301	76.883
1-4	0.997548	98399	392995	7589746	77.132
5-9	0.998262	98158	490365	7196752	73.318
10-14	0.998451	97988	489575	6706388	68.441
15-19	0.997438	97836	488573	6216813	63.543
20-24	0.997439	97585	487302	5728241	58.700
25-29	0.997395	97335	486073	5240940	53.844
30-34	0.995943	97082	484497	4754868	48.978
35-39	0.993749	96688	482048	4270371	44.167
40-44	0.989923	96084	478171	3788323	39.427
45-49	0.984865	95115	472231	3310152	34.801
50-54	0.976713	93676	463306	2837922	30.295
55-59	0.964285	91494	449836	2374616	25.954
60-64	0.946258	88227	430077	1924781	21.816
65-69	0.914967	83485	400780	1494704	17.904
70-74	0.868703	76386	358261	1093925	14.321
75-79	0.791511	66357	298763	735665	11.086
80-84	0.666023	52522	220040	436902	8.318
85+	0.428503	34981	216862	216862	6.199

Source: Compiled from data on deaths by age and sex in Ontario supplied by Statistics Canada and the Office of the Registrar General for Ontario.

TABLE 2.10

MALE LIFE EXPECTANCY, ONTARIO, 1930-32 -- 1971

Age Group	YEAR									
	1930-32[a]	1940-42[a]	1950-52[b]	1955-57[b]	1956[c]	1960-62[d]	1961[c]	1965-67[e]	1966[c]	1971[f]
0	61.30	64.55	66.87	67.80	67.88	68.32	68.41	68.71	69.11	69.56
1	65.05	66.74	68.34	68.76	68.79	69.14	69.20	69.29	69.66	70.01
5-9	-	-	64.78	65.10	65.28	65.42	65.63	65.54	65.72	66.21
10-14	-	-	60.03	60.31	60.50	60.58	60.80	60.69	60.88	61.36
15-19	-	-	55.25	55.48	55.65	53.84	55.95	55.83	56.04	56.48
20-24	48.79	49.57	50.58	50.81	51.02	51.03	51.25	51.14	51.34	51.82
25-29	-	-	45.97	46.19	46.37	44.52	46.62	46.51	46.10	47.20
30-34	-	-	41.29	41.53	41.69	39.80	41.91	41.81	41.98	42.46
35-39	-	-	36.63	36.86	37.04	36.98	37.19	37.08	37.27	37.76
40-44	31.56	31.54	32.03	32.24	32.42	32.35	32.58	32.44	32.61	33.12
45-49	-	-	27.62	27.74	27.90	27.84	28.09	27.95	28.11	28.64
50-54	-	-	23.45	23.52	23.65	23.61	23.89	23.70	23.87	24.37
55-59	-	-	19.60	19.62	19.77	19.69	20.00	19.78	19.95	20.39
60-64	-	-	16.15	16.08	16.26	16.17	16.47	16.23	16.41	16.77
65-69	12.67	12.63	13.07	12.97	13.15	13.05	13.38	13.10	13.25	13.56
70-74	-	-	10.26	10.23	10.48	10.27	10.65	10.36	10.54	10.78
75+	-	-	7.80*	7.81*	8.13	7.92*	8.47	7.97*	8.19	8.33

* Life expectancy at exact age 75.

Source: (a) Dominion Bureau of Statistics, Life Expectancy Trends 1930-32 to 1960-62 (Ottawa: Queen's Printer, 1967), Cat. 84-518, pp.20-21; (b) Dominion Bureau of Statistics, Provincial and Regional Life Tables 1950-52 -- 1955-57 (Ottawa: Queen's Printer, 1960), Cat. 84-512, pp.14-17, 34-37; (c) Betty Macleod, Carol Ivison and Nirmala Bidani, Patterns and Trends in Ontario Population (Toronto: The Ontario Institute for Studies in Education, 1972), pp. 171-76; (d) Dominion Bureau of Statistics, Provincial and Regional Life Tables 1960-62 (Ottawa: Queen's Printer, 1964), Cat. 84-517, pp.12-15; (e) Statistics Canada, Life Tables: Canada and Provinces 1965-67 (Ottawa: Information Canada, 1973), Cat. 84-527, pp.36-39; (f) Betty B. Macleod, The Development of Improved Bases for Forecasting School Age Population Throughout Ontario, Report for Year 2 (Toronto: The Ontario Institute for Studies in Education, 1974), p. 104.

TABLE 2.11

FEMALE LIFE EXPECTANCY, ONTARIO, 1930-32 -- 1971

	YEAR									
Age Group	1930-32[a]	1940-42[a]	1950-52[b]	1955-57[b]	1956[c]	1960-62[d]	1961[c]	1965-67[e]	1966[c]	1971[f]
0	63.92	68.43	71.85	73.57	73.80	74.40	75.01	75.53	76.44	76.88
1	66.84	70.07	72.91	74.25	74.46	74.95	75.52	75.87	76.73	77.13
5-9	-	-	69.27	70.56	70.89	71.19	71.89	72.09	72.78	73.32
10-14	-	-	64.46	65.70	66.02	66.31	67.01	67.22	67.93	68.44
15-19	-	-	59.60	60.82	61.14	61.40	62.11	62.32	63.02	63.54
20-24	50.13	52.40	54.76	55.95	56.27	56.53	57.24	57.45	58.17	58.70
25-29	-	-	49.95	51.11	51.42	51.67	52.39	52.60	53.29	53.84
30-34	-	-	45.14	46.29	46.60	46.83	47.56	47.74	48.45	48.98
35-39	-	-	40.40	41.49	41.79	42.02	42.76	42.91	43.64	44.17
40-44	32.90	34.11	35.75	36.74	37.04	37.27	38.02	38.17	38.88	39.43
45-49	-	-	31.22	32.13	32.43	32.64	33.36	33.52	34.24	34.80
50-54	-	-	26.84	27.67	27.97	28.16	28.88	29.02	29.77	30.30
55-59	-	-	22.59	23.40	23.72	23.86	24.59	24.70	25.47	25.95
60-64	-	-	18.59	19.35	19.70	19.74	20.48	20.59	21.39	21.82
65-69	13.47	14.03	14.92	15.56	15.97	15.90	16.62	16.72	17.69	17.90
70-74	-	-	11.61	12.12	12.54	12.42	13.22	13.13	14.08	14.32
75+	-	-	8.72*	9.12*	9.60	9.31*	10.20	9.93*	11.02	11.09

* Life expectancy at exact age 75.

Source: (a) Dominion Bureau of Statistics, Life Expectancy Trends 1930-32 to 1960-62 (Ottawa: Queen's Printer, 1967), Cat. 84-518, pp.20-21; (b) Dominion Bureau of Statistics, Provincial and Regional Life Tables 1950-52 -- 1955-57 (Ottawa: Queen's Printer, 1960), Cat. 84-512, pp.14-17, 34-37; (c) Betty Macleod, Carol Ivison and Nirmala Bidani, Patterns and Trends in Ontario Population (Toronto: The Ontario Institute for Studies in Education, 1972), pp. 171-76; (d) Dominion Bureau of Statistics, Provincial and Regional Life Tables 1960-62 (Ottawa: Queen's Printer, 1964), Cat. 84-517, pp.12-15; (e) Statistics Canada, Life Tables: Canada and Provinces 1965-67 (Ottawa: Information Canada, 1973), Cat. 84-527, pp.36-39; (f) Betty B. Macleod, The Development of Improved Bases for Forecasting School Age Population Throughout Ontario, Report for Year 2 (Toronto: The Ontario Institute for Studies in Education, 1974), p. 104.

TABLE 2.12

ABRIDGED LIFE TABLES FOR THE EDUCATION REGIONS OF ONTARIO, 1971

Northwestern Region

Age Group	Males					Females					Age Group
	p_x	l_x	L_x	T_x	e_x	p_x	l_x	L_x	T_x	e_x	
1	.970956	100000	97446	6800609	68.01	.979286	100000	98148	7437237	74.37	1
1-4	.995826	97096	387369	6703163	69.04	.997106	97929	391006	7339090	74.94	1-4
5-9	.996343	96690	482568	6315794	65.32	.998729	97645	487916	6948085	71.16	5-9
10-14	.995369	96337	480674	5833227	60.55	.997141	97521	486938	6460170	66.24	10-14
15-19	.991042	95891	477344	5352554	55.82	.997262	97242	485576	5973233	61.43	15-19
20-24	.993363	95032	473563	4875210	51.30	.995630	96976	483864	5487658	56.59	20-24
25-29	.991870	94401	470246	4401648	46.63	.995073	96552	481631	5003794	51.82	25-29
30-34	.985076	93634	464738	3931402	41.99	.992621	96077	478762	4522163	47.07	30-34
35-39	.988356	92236	458550	3466664	37.58	.987373	95368	473902	4043402	42.40	35-39
40-44	.981823	91162	452006	3008115	33.00	.988641	94163	468284	3569500	37.91	40-44
45-49	.969868	89505	441313	2556109	28.56	.979780	93094	461149	3101216	33.31	45-49
50-54	.951615	86808	424104	2114797	24.36	.967975	91212	449395	2640068	28.94	50-54
55-59	.934580	82608	400566	1690693	20.47	.943895	88290	429621	2190674	24.81	55-59
60-64	.881132	77204	364251	1290127	16.71	.933128	83337	403186	1761054	21.13	60-64
65-69	.837680	68027	313454	925877	13.61	.909532	77764	372222	1357869	17.46	65-69
70-74	.760958	56985	251503	612423	10.75	.854059	70729	329381	985648	13.94	70-74
75-79	.675082	43363	181810	360919	8.32	.760966	60407	266767	656266	10.86	75-79
80-84	.498682	29274	108821	179109	6.12	.688601	45967	194833	389500	8.47	80-84
85+	.316892	14598	70287	70287	4.81	.425335	31653	194667	194667	6.15	85+

Table 2.12 (cont'd)

Midnorthern Region

Age Group	Males					Females					Age Group
	p_x	l_x	L_x	T_x	e_x	p_x	l_x	L_x	T_x	e_x	
1	.978931	100000	98117	6681258	66.81	.983370	100000	98501	7536123	75.36	1
1-4	.996781	97893	390784	6583141	67.25	.997239	98337	392669	7437622	75.63	1-4
5-9	.996288	97578	486984	6192357	63.46	.998459	98066	489950	7044953	71.84	5-9
10-14	.997739	97216	485602	5705373	58.69	.998960	97914	489359	6555004	66.95	10-14
15-19	.992647	96996	483376	5219772	53.81	.996422	97813	488280	6065646	62.01	15-19
20-24	.988765	96283	478701	4736397	49.19	.994416	97463	485931	5577367	57.23	20-24
25-29	.992927	95201	474363	4257697	44.72	.997437	96918	483930	5091437	52.53	25-29
30-34	.986439	94528	469572	3783335	40.02	.996394	96670	482586	4607508	47.66	30-34
35-39	.985625	93246	463027	3313764	35.54	.992051	96321	479808	4124923	42.82	35-39
40-44	.978215	91905	454959	2850737	31.02	.990569	95556	475878	3645116	38.15	40-44
45-49	.961684	89903	441486	2395778	26.65	.974062	94655	467555	3169239	33.48	45-49
50-54	.944504	86458	420924	1954292	22.60	.968374	92199	453962	2701685	29.30	50-54
55-59	.920910	81660	393310	1533368	18.78	.958802	89284	437834	2247723	25.18	55-59
60-64	.862464	75202	351479	1140058	15.16	.931625	85605	414083	1809890	21.14	60-64
65-69	.802184	64859	293632	788580	12.16	.912349	79752	382720	1395807	17.50	65-69
70-74	.670768	52029	217382	494948	9.51	.824814	72762	332763	1013087	13.92	70-74
75-79	.623794	34899	140358	277566	7.95	.817821	60015	273500	680324	11.34	75-79
80-84	.503064	21770	80562	137208	6.30	.666033	49081	206066	406824	8.29	80-84
85+	.345692	10952	56647	56647	5.17	.425090	32690	200758	200758	6.14	85+

Table 2.12 (cont'd)

Northeastern Region

Age Group	Males					Females					Age Group
	p_x	l_x	L_x	T_x	e_x	p_x	l_x	L_x	T_x	e_x	
1	.972587	100000	97581	6735037	67.35	.976324	100000	97895	7565325	75.65	1
1-4	.997714	97259	388479	6637456	68.25	.998811	97632	390239	7467430	76.49	1-4
5-9	.997589	97036	484597	6248978	64.40	.999063	97516	487353	7077191	72.57	5-9
10-14	.997149	96802	483463	5764382	59.55	.997900	97425	486671	6589838	67.64	10-14
15-19	.990537	96526	480471	5280919	54.71	.996196	97220	485172	6103167	62.78	15-19
20-24	.990962	95613	475826	4800448	50.21	.998127	96851	483815	5617995	58.01	20-24
25-29	.994340	94749	472336	4324622	45.64	.995395	96669	482257	5134181	53.11	25-29
30-34	.994253	94213	469892	3852286	40.89	.996864	96224	480428	4651924	48.34	30-34
35-39	.984903	93671	465255	3382394	36.11	.992184	95922	477885	4171496	43.49	35-39
40-44	.971543	92257	455147	2917140	31.62	.989315	95172	473478	3693611	38.81	40-44
45-49	.961430	89632	439945	2461993	27.47	.983940	94156	467392	3220133	34.20	45-49
50-54	.945613	86175	419746	2022049	23.46	.968542	92643	456339	2752741	29.71	50-54
55-59	.922810	81488	392663	1602304	19.66	.961325	89729	440352	2296403	25.59	55-59
60-64	.877071	75198	354137	1209642	16.09	.944924	86259	420054	1856052	21.52	60-64
65-69	.813023	65954	299838	855505	12.97	.919894	81508	392446	1435998	17.62	65-69
70-74	.747104	53622	234586	555667	10.36	.857919	74979	349895	1043552	13.92	70-74
75-79	.646880	40061	164917	321081	8.01	.776589	64326	287523	693658	10.78	75-79
80-84	.480873	25915	94746	156164	6.03	.611617	49955	201714	406134	8.13	80-84
85+	.325228	12462	61418	61418	4.93	.459720	30553	204420	204420	6.69	85+

Table 2.12 (cont'd)

Western Region

Age Group	Males					Females					Age Group
	p_x	l_x	L_x	T_x	e_x	p_x	l_x	L_x	T_x	e_x	
1	.978949	100000	98119	6942028	69.42	.985634	100000	98700	7671508	76.72	1
1-4	.997222	97895	390900	6843910	69.91	.997453	98563	393626	7572809	76.83	1-4
5-9	.997420	97623	487485	6453011	66.10	.998812	98312	491270	7179183	73.02	5-9
10-14	.998382	97371	486545	5965526	61.27	.997973	98196	490494	6687913	68.11	10-14
15-19	.993253	97214	484580	5478981	56.36	.998167	97997	489546	6197420	63.24	15-19
20-24	.990776	96558	480613	4994401	51.72	.997381	97817	488465	5707875	58.35	20-24
25-29	.990557	95667	476041	4513788	47.18	.997158	97561	487145	5219411	53.50	25-29
30-34	.992404	94764	472044	4037748	42.61	.995672	97284	485395	4732266	48.64	30-34
35-39	.989086	94044	467826	3565704	37.92	.995632	96863	483326	4246871	43.84	35-39
40-44	.983347	93017	461477	3097879	33.30	.992079	96439	480522	3763545	39.02	40-44
45-49	.974998	91468	452164	2636402	28.82	.983789	95675	474806	3283024	34.31	45-49
50-54	.953576	89182	436397	2184238	24.49	.976250	94124	465431	2808218	29.84	50-54
55-59	.925712	85041	410338	1747842	20.55	.962359	91889	451281	2342788	25.50	55-59
60-64	.890984	78724	373167	1337504	16.99	.948501	88430	431637	1891508	21.39	60-64
65-69	.841240	70142	323875	964337	13.75	.908893	83876	401499	1459871	17.41	65-69
70-74	.772736	59006	262375	640463	10.85	.863285	76234	356315	1058373	13.88	70-74
75-79	.664198	45596	189887	378088	8.29	.796424	65812	297245	702058	10.67	75-79
80-84	.527820	30285	114832	188201	6.21	.647367	52414	217458	404813	7.72	80-84
85+	.294952	15985	73368	73368	4.59	.379700	33931	187356	187356	5.52	85+

Table 2.12 (cont'd)

Midwestern Region

Age Group	Males					Females					Age Group
	p_x	l_x	L_x	T_x	e_x	p_x	l_x	L_x	T_x	e_x	
1	.978943	100000	98119	6989229	69.89	.986702	100000	98794	7762533	77.63	1
1-4	.996280	97894	390667	6891111	70.39	.997265	98670	394006	7663740	77.67	1-4
5-9	.997334	97530	487001	6500445	66.65	.998333	98400	491592	7269734	73.88	5-9
10-14	.998263	97270	486034	6013445	61.82	.998313	98236	490782	6778143	69.00	10-14
15-19	.992067	97101	483797	5527411	56.92	.997613	98071	489794	6287361	64.11	15-19
20-24	.987454	96331	478592	5043615	52.36	.997051	97837	488468	5797568	59.26	20-24
25-29	.993948	95122	474064	4565023	47.99	.997312	97548	487082	5309101	54.43	25-29
30-34	.992705	94547	471096	4090959	43.27	.997203	97286	485804	4822020	49.57	30-34
35-39	.989398	93857	466911	3619863	38.57	.994590	97014	483893	4336217	44.70	35-39
40-44	.986657	92862	461421	3152952	33.95	.990411	96489	480279	3852325	39.93	40-44
45-49	.978160	91623	453678	2691532	29.38	.987118	95564	474977	3372047	35.29	45-49
50-54	.955784	89622	439004	2237854	24.97	.978165	94333	466909	2897070	30.71	50-54
55-59	.931651	85659	414485	1798850	21.00	.966115	92273	453975	2430162	26.34	55-59
60-64	.900620	79804	380358	1384366	17.35	.953886	89146	436219	1976187	22.17	60-64
65-69	.840813	71873	331936	1004008	13.97	.920039	85035	409501	1539968	18.11	65-69
70-74	.775640	60432	268912	672073	11.12	.866287	78236	366474	1130467	14.45	70-74
75-79	.689555	46874	198435	403161	8.60	.797187	67775	305963	763994	11.27	75-79
80-84	.514185	32322	121628	204725	6.33	.677287	54029	228008	458032	8.48	80-84
85+	.333811	16619	83097	83097	5.00	.433879	36593	230023	230023	6.29	85+

Table 2.12 (cont'd)

Niagara Region

Age Group	Males p_x	Males l_x	Males L_x	Males T_x	Males e_x	Females p_x	Females l_x	Females L_x	Females T_x	Females e_x	Age Group
1	.980130	100000	98220	6979326	69.79	.983983	100000	98555	7745729	77.46	1
1-4	.998190	98013	391608	6881106	70.21	.998085	98398	393122	7647175	77.72	1-4
5-9	.997669	97836	488608	6489498	66.33	.998025	98210	490565	7254053	73.86	5-9
10-14	.997061	97608	487370	6000891	61.48	.998808	98016	489804	6763489	69.00	10-14
15-19	.995198	97321	485502	5513521	56.65	.997189	97899	488827	6273685	64.08	15-19
20-24	.993710	96853	482744	5028020	51.91	.997839	97624	487586	5784858	59.26	20-24
25-29	.995133	96244	480018	4545277	47.23	.997496	97413	486488	5297273	54.38	25-29
30-34	.995196	95776	477855	4065259	42.45	.996210	97169	485010	4810786	49.51	30-34
35-39	.988676	95316	474095	3587404	37.64	.993266	96801	482462	4325777	44.69	35-39
40-44	.984114	94236	467710	3113309	33.04	.991784	96149	478882	3843315	39.97	40-44
45-49	.974298	92739	458262	2645599	28.53	.987531	95359	474117	3364434	35.28	45-49
50-54	.955553	90356	442624	2187337	24.21	.976579	94170	465691	2890318	30.69	50-54
55-59	.923161	86340	416121	1744714	20.21	.968518	91964	452995	2424628	26.36	55-59
60-64	.888906	79705	377534	1328594	16.67	.953043	89069	435621	1971633	22.14	60-64
65-69	.828881	70851	325009	951061	13.42	.924545	84887	409651	1536013	18.09	65-69
70-74	.762140	58727	259597	626052	10.66	.871426	78482	369065	1126362	14.35	70-74
75-79	.634220	44758	182734	366456	8.19	.774153	68391	305006	757298	11.07	75-79
80-84	.529310	28386	107182	183721	6.47	.658363	52945	220228	452292	8.54	80-84
85+	.340837	15025	76540	76540	5.09	.457261	34857	232064	232064	6.66	85+

Table 2.12 (cont'd)

Central Region

Age Group	Males					Females					Age Group
	p_x	l_x	L_x	T_x	e_x	p_x	l_x	L_x	T_x	e_x	
1	.981808	100000	98365	7065980	70.66	.985772	100000	98712	7745600	77.46	1
1-4	.997293	98181	392059	6967615	70.97	.997544	98577	393704	7646889	77.57	1-4
5-9	.998126	97915	489116	6575557	67.16	.998354	98335	491271	7253186	73.76	5-9
10-14	.998640	97732	488389	6086441	62.28	.998650	98173	490543	6761916	68.88	10-14
15-19	.994998	97599	486848	5598053	57.36	.997950	98041	489719	6271374	63.97	15-19
20-24	.994892	97110	484298	5111205	52.63	.997771	97840	488657	5781656	59.09	20-24
25-29	.995622	96614	482041	4626907	47.89	.997767	97622	487606	5293000	54.22	25-29
30-34	.993493	96191	479469	4144866	43.09	.995655	97404	486027	4805395	49.33	30-34
35-39	.991722	95566	476033	3665397	38.35	.994422	96980	483687	4319368	44.54	35-39
40-44	.984147	94775	470445	3189365	33.65	.988769	96439	479667	3835682	39.77	40-44
45-49	.974619	93272	460902	2718921	29.15	.985367	95356	473485	3356015	35.19	45-49
50-54	.959185	90905	445943	2258020	24.84	.978663	93961	465161	2882530	30.68	50-54
55-59	.934561	87194	422766	1812077	20.78	.965594	91956	452430	2417369	26.29	55-59
60-64	.892106	81489	386770	1389312	17.05	.947202	88792	433017	1964939	22.13	60-64
65-69	.835172	72696	334582	1002543	13.79	.918096	84104	404308	1531922	18.21	65-69
70-74	.771688	60714	269768	667961	11.00	.876606	77216	363716	1127614	14.60	70-74
75-79	.656867	46852	194113	398193	8.50	.794908	67688	305336	763898	11.29	75-79
80-84	.542866	30776	117623	204080	6.63	.679959	53806	227381	458562	8.52	80-84
85+	.349162	16707	86457	86457	5.17	.436428	36586	231181	231181	6.32	85+

Table 2.12 (cont'd)

Eastern Region

Age Group	Males p_x	Males l_x	Males L_x	Males T_x	Males e_x	Females p_x	Females l_x	Females L_x	Females T_x	Females e_x	Age Group
1	.976374	100000	97900	6905778	69.06	.979519	100000	98168	7674405	76.74	1
1-4	.998193	97637	390109	6807879	69.73	.996494	97952	390949	7576238	77.35	1-4
5-9	.997502	97461	486696	6417771	65.85	.997174	97609	487353	7185289	73.61	5-9
10-14	.995451	97218	485108	5931075	61.01	.998742	97333	486373	6697937	68.81	10-14
15-19	.991230	96775	481846	5445968	56.27	.996368	97210	485186	6211564	63.90	15-19
20-24	.990828	95927	477378	4964123	51.75	.997865	96857	483757	5726379	59.12	20-24
25-29	.993876	95047	473714	4486746	47.21	.996906	96650	482508	5242622	54.24	25-29
30-34	.993985	94465	470959	4013033	42.48	.997647	96351	481252	4760114	49.40	30-34
35-39	.990914	93896	467613	3542074	37.72	.993761	96125	479221	4278862	44.51	35-39
40-44	.980278	93043	461012	3074461	33.04	.992738	95525	476061	3799642	39.78	40-44
45-49	.970491	91208	449828	2613450	28.65	.985046	94831	470827	3323582	35.05	45-49
50-54	.951331	88517	432711	2163622	24.44	.981437	93413	463114	2852755	30.54	50-54
55-59	.916907	84209	404428	1730911	20.55	.964430	91679	450872	2389641	26.07	55-59
60-64	.889741	77212	365564	1326484	17.18	.946183	88418	431007	1938769	21.93	60-64
65-69	.843058	68699	317434	960921	13.99	.914330	83660	401467	1507762	18.02	65-69
70-74	.778730	57917	258281	643486	11.11	.869573	76492	358759	1106295	14.46	70-74
75-79	.682676	45102	189908	385205	8.54	.802876	66516	301249	747537	11.24	75-79
80-84	.555741	30790	119336	195297	6.34	.682851	53404	226376	446288	8.36	80-84
85+	.280285	17111	75961	75961	4.44	.416764	36467	219912	219912	6.03	85+

Table 2.12 (cont'd)

Ottawa Valley Region

Age Group	Males					Females					Age Group
	p_x	l_x	L_x	T_x	e_x	p_x	l_x	L_x	T_x	e_x	
1	.978502	100000	98081	6931418	69.31	.980256	100000	98231	7617224	76.17	1
1-4	.996817	97850	390622	6833338	69.83	.997986	98026	391609	7518993	76.70	1-4
5-9	.996849	97539	486925	6442716	66.05	.997481	97828	488525	7127385	72.86	5-9
10-14	.998198	97231	485752	5955791	61.25	.998356	97582	487520	6638861	68.03	10-14
15-19	.995223	97056	484238	5470040	56.36	.996867	97421	486352	6151342	63.14	15-19
20-24	.992429	96593	481159	4985803	51.62	.997912	97116	485051	5664990	58.33	20-24
25-29	.993948	95861	477870	4504645	46.99	.997958	96913	484103	5179939	53.45	25-29
30-34	.991640	95281	474496	4026776	42.26	.996349	96716	482803	4695836	48.55	30-34
35-39	.989677	94485	470086	3552280	37.60	.992541	96362	480154	4213033	43.72	35-39
40-44	.986270	93509	464638	3082195	32.96	.989337	95644	475793	3732879	39.03	40-44
45-49	.973739	92225	455664	2617558	28.38	.986094	94624	470087	3257086	34.42	45-49
50-54	.954052	89803	439663	2161895	24.07	.975813	93308	461279	2786999	29.87	50-54
55-59	.917830	85677	411852	1722232	20.10	.965469	91051	448081	2325720	25.54	55-59
60-64	.882408	78637	371112	1310380	16.66	.936896	87907	426649	1877639	21.36	60-64
65-69	.826267	69390	317703	939268	13.54	.904605	82360	393014	1450990	17.62	65-69
70-74	.764049	57335	253556	621564	10.84	.870361	74503	349523	1057977	14.20	70-74
75-79	.647718	43807	180309	368008	8.40	.793422	64845	292613	708454	10.93	75-79
80-84	.547436	28374	108687	187699	6.62	.636991	51449	211652	415841	8.08	80-84
85+	.340637	15533	79012	79012	5.09	.430537	32773	204189	204189	6.23	85+

Source: Computed from data on deaths by age and sex, by county, district and regional area, provided by Statistics Canada and the Office of the Registrar General of Ontario.

Chapter Three
Population Movement in and about the Province

Introduction

It would be a relatively easy matter to make accurate population projections if people would only stop moving about. Death rates tend to have considerable stability and generally change in a direction and at a pace which can be foreseen; and while birth rates are much more volatile, their pattern is relatively perceivable over a period of two or three years. Migration is the least predictable of any of the major population components.

This lack of predictability results from our incomplete knowledge about what induces people to migrate, as well as from our inability to foresee changes in factors with which migration is known to be associated. We know, for instance, that migration has rural-urban dimensions; that international migration affects internal migration; that there is a relation between migration and the economic cycle; that natural increase may be related to the level and direction of migration; and that while migration may contribute towards cultural diffusion and social integration on the one hand, it may also be associated with such problems as labour unrest and racial prejudice, on the other. Unfortunately, although many worthwhile studies have been generated respecting various aspects of migration, we can neither set forth unerringly the full dimensions of migration into and within Ontario nor spell out entirely the circumstances which contribute to the stability of the conditions with which migration is associated.

Unlike some countries of Europe which keep registries of migration, Canada has no annual records of population movement other than for international migrants. This means that estimates of internal migration--unless they can be excerpted from the files of utility companies, records kept by welfare and insurance agencies, assessment rolls, family allowance payments, national revenue accounts, and other incomplete sets of data which are often sporadically maintained and are sometimes of unreliable calibre - must be derived from census data. The recent introduction into the census of additional questions respecting migration has provided more direct information than in earlier years but still leaves many gaps in the data base.

The Measurement of Migration

The analysis of migration in this chapter is based upon data on migrant status from the 1971 Census and estimates of net migration from census materials using a residual method of calculation. For the latter, the survival rate was used to age the population recorded at a given census, and the results were compared with the number of persons of appropriate ages found to be living at the next census. The difference between the estimate and the actual count was assumed to represent net migration, although this meant that deaths of persons who had immigrated were not taken into account. The estimates of net migration derived in this way differed somewhat from those given in an earlier study, Patterns and Trends in Ontario Population, in that those estimates were prepared by the vital statistics method, which gives no breakdown by age of migrants. The survival ratio method used in the present study allowed detailed estimates of net migration by age and sex as well as the preparation of overall totals. Comparability of net migration estimates between the two studies is reduced by this change in methodology, but some analysis of general patterns and flows is still possible. In any case, because there is unknown error in any estimation of net migration from available data bases, the analysis of movements can be undertaken only tentatively and on a broad level. Although the data on migrant status from the 1971 Census represent considerable progress in the state of our knowledge about migration, migration analysis will not be satisfactory for Ontario population until annual records of in and out movements of population are maintained on an ongoing and comprehensive basis.

The measurement of migration requires specification of the size of geographic unit used, the time dimension involved, the duration of the move, and the distance involved. The first factor--the size of the geographic unit--was determined by the decision to use census divisions

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as the basic units for comparison. In analysing migration we are therefore concerned only with movements to and from counties, districts, and regional areas of Ontario and with movements into the province from other parts of Canada or from outside the country.

The questions of time dimension and duration of the move were similarly resolved by the decision to use census data as a basis for estimation. Since censuses in Canada are five years apart, estimates of migration were necessarily made with respect to a five-year period and were on a net basis rather than recording in or out movements or gross year-to-year movements. In the 1971 Census, information was obtained about the origin of the migrant and the number of moves which occurred over the five-year period between the censuses, along with other data which were not at hand at the time this report was prepared. The data on migrant status are considered below.

The Distribution of Population

The growth of villages, towns, and cities throughout Ontario has reflected migration from both within and outside the province. Indeed, Ontario has served as a focal point and a divide for provincial patterns of migration within Canada, and since 1921 has received the largest flow of immigrants from outside the country. Over the historical perspective of provincial growth, only British Columbia has shown similar consistent tendencies for net gains of population as far back as 1871. Economic growth and modernization, contributing to higher levels of income and greater availability of employment (other than in primary activities) than in other parts of Canada, appear to explain most of Ontario's migratory pull.[1]

Probably the best measures of population distribution are density and rural-urban proportions. Data for population and density per square mile in 1966 and 1971 are given for areas within education regions in Table 3.0. In the Central Region, the Toronto area was most densely populated, with almost 9,000 persons per square mile. Peel and Halton

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[1] In a 1961 Census monograph, Leroy O. Stone found that 80% of the variance in net migration across Canada appeared to be explained by income, unemployment, population size, distance, and information flows. Of these, income, information flows, and distance appeared to be the most important. See Leroy O. Stone, Migration in Canada, Regional Aspects (Ottawa: Dominion Bureau of Statistics, 1969), pp. 175-202.

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Counties, also in the Central Region, had densities of over 500 persons per square mile, but, in other areas within the region, density fell below 100 (Dufferin, Victoria, and Haliburton). Densities were also relatively high in Wentworth and in the Regional Municipality of Niagara in the Niagara Region; in Waterloo in the Midwestern Region; in the Regional Municipality of Ottawa-Carleton in the Ottawa Valley Region; and in Essex County in the Western Region.

At the other end of the spectrum, lowest densities occurred generally in the northern regions of the province. In the Northwestern Region less than 5 persons were found per square mile, and only 0.4 in Kenora. In the Midnorthern Region densities ranged from 6 to 11 persons per square mile throughout. And in the Northeastern Region densities were less than 2 in Cochrane and rose to about 20 in the District Municipality of Muskoka.

Ranges in the Western Region were from 40 persons per square mile in Huron to 426 in Essex. The range in the Midwestern Region was from 30 in Bruce County to 495 in Waterloo; in the Niagara Region from 84 in Norfolk to 910 in Wentworth; in the Central Region from 6 in Haliburton District to 8,632 in the Regional Municipality of Metropolitan Toronto; in the Eastern Region from 26 in Lennox and Addington to 69 in Frontenac; in the Ottawa Valley Region from 31 in Renfrew to 443 in the Regional Municipality of Ottawa-Carleton.

If these densities were plotted on a map, the picture would not be much different from earlier years,[2] although the average density across Ontario rose from 19.2 to 21.7 between 1966 and 1971. A comparison of directions of change in densities for counties, districts, and regional areas between those census years reveals that the York-Toronto area, along with Halton and Peel Counties, have been the strongest gainers, with Wentworth, Essex, and Wellington Counties reflecting lesser increases. At the other extreme, Prince Edward and Huron Counties and the Cochrane District had slightly lower densities in 1971 than in 1966.

Table 3.1 indicates the historical changes in total population and in the rural-urban distribution of population for Ontario as a whole since 1901. Urbanization has increased more rapidly than population growth throughout all the intercensal periods except 1941-51. It would appear that urban centres and their environs have acted as growth poles in attracting migrants into many parts of Ontario, a situation that largely explains increased densities where they have occurred throughout the province.

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[2] See the maps for density of the 1966 population in B. Macleod et al., Patterns and Trends in Ontario Population, pp. 11, 13.

One of the difficulties in analysing trends in urbanization is that changes occur in urban definitions over time, as jurisdiction with respect to the geographic areas is altered to reflect concentrations of population: that is to say, as population grows in density it is bound to become more urban, since urbanness results from and is a component of high density concentrations.

Looking at urbanness from the point of view of change in the counties and districts by education region, and using the definition of urban as revised in 1961, we have shifts in rural-urban distribution of population between 1961 and 1971 as shown in Tables 3.2 and 3.3. (In an attempt to capture the historical change over the longer run, Table 3.1 used a definition of urban areas employed prior to 1951.)

Urbanness rose generally across all education regions between 1961 and 1971. As expected, the Central Region and the Niagara Region were the most urban, both exceeding the degree of urbanness generally across Ontario. Urbanness above the average for their respective regions occurred in Thunder Bay in the Northwestern Region; Algoma in the Mid-northern Region; Cochrane, Muskoka, and Nipissing in the Northeastern Region; Essex and Middlesex in the Western Region; Brant and Wellington in the Midwestern Region; Niagara and Wentworth in the Niagara Region; Halton and York-Toronto in the Central Region; Frontenac, Hastings, and Peterborough in the Eastern Region; and Ottawa-Carleton in the Ottawa Valley Region.

Migration as a Factor in Population Growth

Either migration or positive natural increase can contribute to an area's population growth. However, because natural increase tends to decline with the degree of urbanness, internal migration is of increasing importance as communities grow in population size.

Table 3.4 presents estimates of migration as a factor in population growth for the counties, districts, and regional areas of Ontario, arranged by education regions, over the period 1966-71. This table was calculated by subtracting the natural increase of population (recorded births minus deaths) for each area from the change in population recorded over the census period. The result was assumed to be the net migration for the area (see Table 3.7, column 4, for the actual estimates) although some of the change arose, without doubt, out of boundary adjustment such as the reallocation of part of Burlington from Wentworth to Halton County. After these calculations were made, net migration was then expressed as a percentage of population change over the intercensal period.

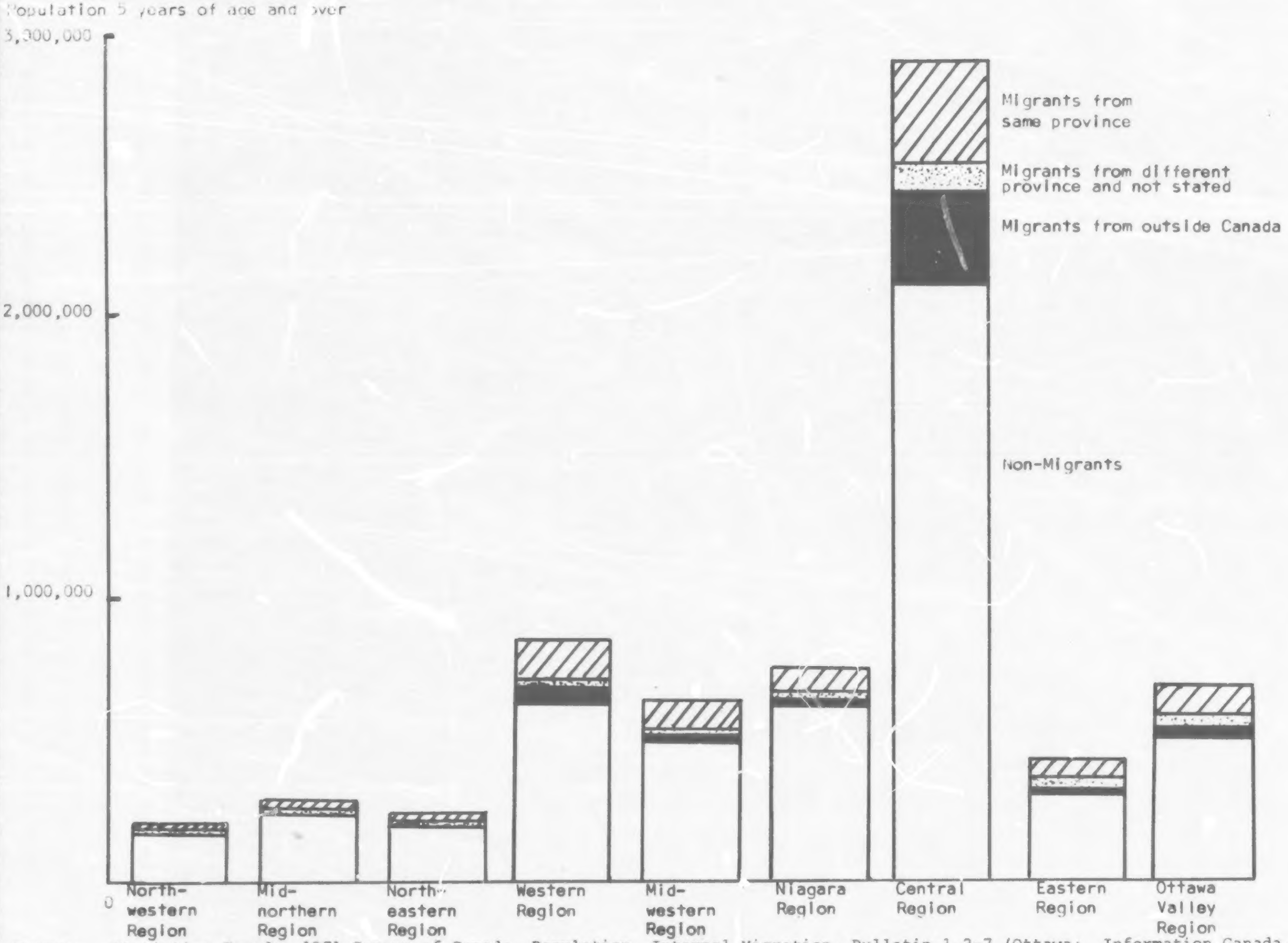
These estimates of the role of migration in the population growth of counties, districts, and regional areas indicate that migration over 1966-71 caused a drain of population from the Rainy River District of the Northwestern Region; growth in Sudbury in the Midnorthern Region; a net loss for Cochrane, and a net gain for the District Municipality of Muskoka in the Northeastern Region; net outward movement respecting Huron and net gain for Middlesex in the Western Region; gains for Bruce, Waterloo, and Wellington in the Midwestern Region, for Haldimand in the Niagara Region, and for Haliburton, Peel, and Dufferin in the Central Region; net losses for Leeds and Prince Edward, net gains for Lennox and Addington, and for Northumberland in the Eastern Region; net losses for Renfrew, Dundas, Glengarry, Prescott, and Stormont, and a net gain for the Regional Municipality of Ottawa-Carleton (part of which resulted from the switch of Cumberland Township from Russell County) in the Ottawa Valley Region.

The 1971 Census collected information about the source of migrants, by county, district, and regional area, as depicted graphically for education regions in Figure 3A. The figure shows quite strikingly that migrants from outside Canada have tended to converge upon the Central Region to a far greater extent than upon other regions. Over 35% of migrants to the Central Region were from outside Canada, compared with from 9% to 30% to other regions. Numerically, the movement to the Central Region included about 278,000 persons from outside Canada--more than the entire population 5 years of age and over in the Northwestern or Northeastern Regions, and almost as many persons as were in those ages in the Midnorthern Region of Ontario. Or, to express it another way, of the 439,000 migrants coming to Ontario from outside Canada over the period 1966-71, the Central Region received over 63%.

Details for population by migration status are given for Ontario in Table 3.5 and for counties, districts, and regional areas within the

1 7 3

FIGURE 3A: POPULATION 5 YEARS OF AGE AND OVER BY MIGRATION STATUS IN 1971 IN EDUCATION REGIONS OF ONTARIO



Source: Statistics Canada, 1971 Census of Canada, Population, Internal Migration, Bulletin 1.2-7 (Ottawa: Information Canada, 1974), Cat. 92-719, Table 34.

various education regions in Table 3.6. The largest number of migrants from outside Canada, as one might expect from the size of the movement to the Central Region, went to the Municipality of Metropolitan Toronto--some 230,000 migrants, or 53% of migrants from all sources (inside and outside the province and/or Canada) coming into the Central Region over the period 1966-71. Of migrants to other areas in the Central Region, fewer than 20% came from outside Canada, with Peel and Halton receiving the largest inflow in terms of actual numbers of immigrants.

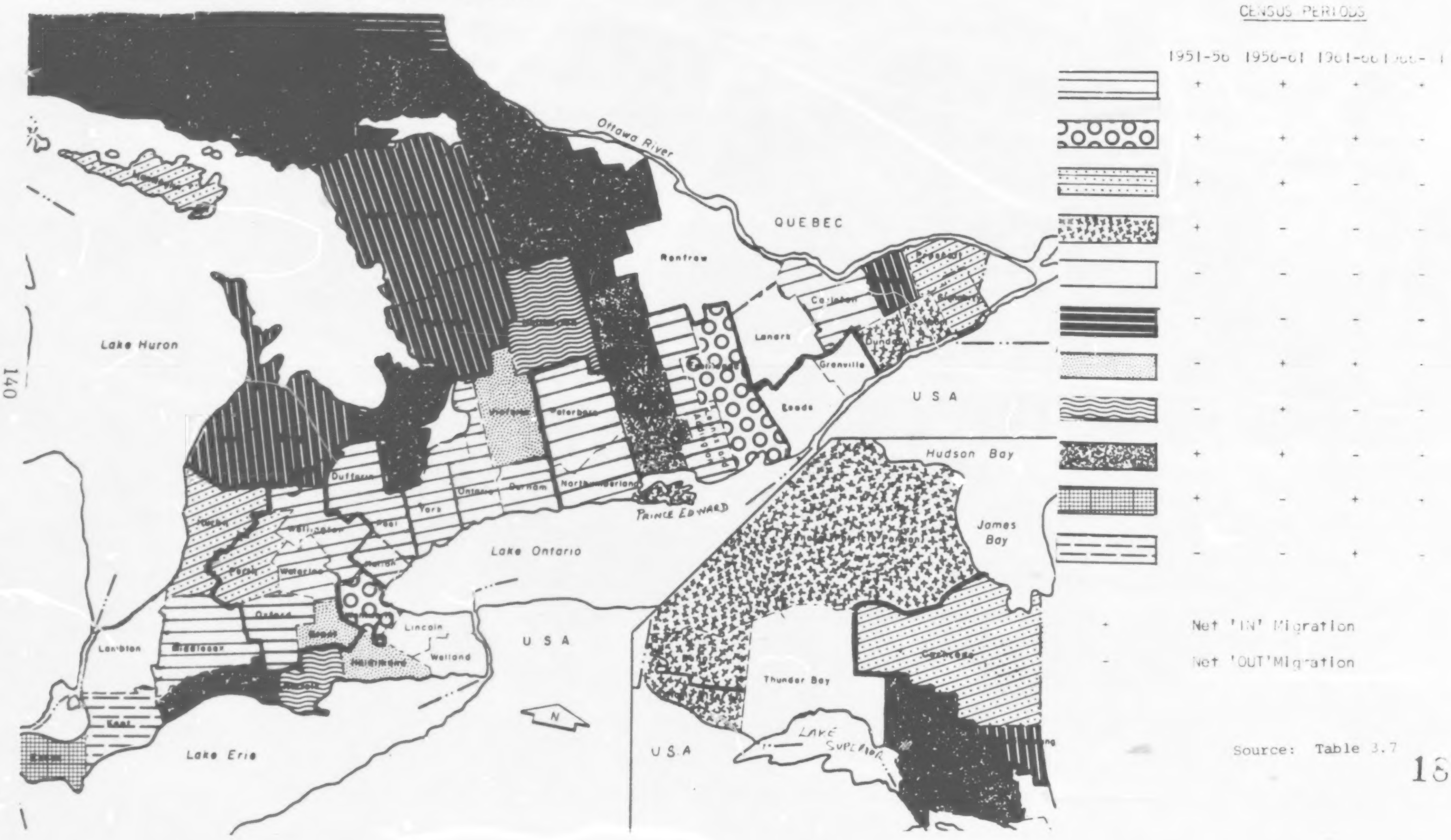
Intraprovincial movement was a more significant element of migration for population in the Northeastern, Northwestern, and Eastern Regions than elsewhere; interprovincial migration was of most importance to population movement in the Ottawa Valley and the Northwestern Regions, both of which are adjacent to other Canadian provinces and undoubtedly experience substantial movement of population across the boundaries with the neighbouring provinces of Quebec and Manitoba.

Patterns and Flows of Migration

According to the 1971 Census, there were 1,764,960 persons of 5 years of age and over in Ontario who had been migrants since 1966; of these about 56% were from within Ontario, 14% were from other provinces, and 25% were from outside Canada; residence of origin was not stated for the remainder. These migrants were part of a net movement into Ontario of about 330,000 persons over the 1966-71 period. Over the earlier intercensal periods from 1951, the net movement into Ontario had been about 379,000 in 1951-56, 308,730 in 1956-61, and 237,181 in 1961-66.

Figure 3B and Table 3.7 summarize the patterns of migration for Ontario counties, districts, and regional areas over the intercensal periods since 1951. In Table 3.7, the data on migrants are taken from Table 3.5 on migrant status of the population 5 years of age and over, and the data on net migration for 1966-71 are indirect estimates from census data calculated by the survival ratio method. The symbols for net direction of migratory movement given under the column headed "migration pattern" in Table 3.7 are derived from estimates of net migration computed by the vital statistics method in Patterns and Trends in Ontario Population for 1951-56, 1956-61, and 1961-66, and from the data given in the fourth column of Table 3.7 for 1966-71. Figure 3B is based on these sources as well.

FIGURE 3B: TRENDS IN MIGRATION, 1951 TO 1971


CENSUS PERIODS
1951-56
1956-61
1961-66
1966-71
+ + + +
+ + + -
+ + - -
+ - - -
- - - -
- - - -
- + + -
- + - -
+ + - -
+ - + -
- - + -
+ Net 'IN' Migration
- Net 'OUT' Migration
Ottawa River
QUEBEC
Renfrew
Carleton
Lanark
Grenville
Leeds
Dundas
Prescott
Glengarry
Stormont
Lake Huron
Peterborough
Northumberland
Durham
Ontario
York
Peel
Dufferin
Wellington
Perth
Waterloo
Halton
Oxford
Brant
Middlesex
Lambton
Lincoln
Welland
Haldimand
Norfolk
Kent
Essex
Elgin
PRINCE EDWARD
Lake Ontario
Lake Erie
U S A
N
Hudson Bay
James Bay
Thunder Bay
Cochrane
LAKE SUPERIOR
U.S.A

Source: Table 3.7

The advantage of bringing the three columns of information together in Table 3.7 is that, in spite of an inconsistency in definition of net migration between the first three periods and the last intercensal period, we can get a feel for both the direction of the movement and the size of the turnover involved.

An examination of the migratory patterns of migration, based upon the analysis in Patterns and Trends in Ontario Population, as well as the findings recorded in the Report for Year 1 of this project and some subsequent revisions to the estimates of net migration therein, indicates certain clearly defined patterns of movement. During 1951-56 and 1956-61 there was significant movement towards not only the recognized growth areas of the province--York (including Toronto), the counties to the immediate west of Lake Ontario and Ottawa-Carleton --but also to more remote areas of Northern Ontario such as Sudbury, Algoma, and Thunder Bay, which were usual areas of net out-migration. Net in-migration was widespread over many parts of Ontario and net out-migration was a demographic characteristic of relatively few areas. But during 1961-66 this pattern of migration was reversed; net out-migration became a characteristic of many counties and districts of Ontario, whereas net in-migration was confined to a few. The trend was reversed again during 1966-71, when a rise occurred in the general level of migration across county and district patterns. Areas which had received large streams of migration in 1961-66 (i.e., 9,000 or more net in-migrants) generally received even more migrants during 1966-71, although a few counties which had consistently attracted in-migrants since 1951 had somewhat lower levels of in-migration. Ontario, Waterloo, and the newly created Regional Municipality of York combined with the Municipality of Metropolitan Toronto, while still in the large stream category, received fewer in-migrants than their corresponding regional areas in 1961-66, whereas Wentworth County actually had a net movement outwards (in part because of a boundary change removing some of the population of Burlington to Halton, as already noted). Areas such as Simcoe and Sudbury, where substantial in-migration had occurred in 1951-56 and 1956-61, followed by net out-migration in 1961-66, again experienced net in-migration in 1966-71.

Most of the areas attracting net migration over the whole of the period from 1951-71 were in the Midwestern, Niagara, and Central

Regions and followed the general pattern described earlier for the role of migration in population growth across the province. In particular, the York-Toronto area far exceeded any other in consistently attracting net migrants, and its base in terms of migrant status was almost 500,000 persons.

On the whole, the pattern for 1966-71 migration was to reverse or modify earlier out-migration with the exception of Thunder Bay and Leeds, which continued to lose substantial numbers of population through migration. Muskoka, Bruce, Grey, Dufferin, Simcoe, and Parry Sound were notable for sharp increases in net in-migration that were, in some instances, a reversal of earlier histories of net out-migration.

Conclusions

During the course of this project, attempts were made to assess the size and direction of migration flows at the county, district, and regional area levels, for the purpose of generating population projections based upon the patterns of demographic components throughout the province. The final input to the projection program respecting migration involved two assumptions, unlike the input for fertility and mortality, where a single set of assumptions was used.

The reason for this decision was that migration is affected by a great many unpredictable influences. If there was economic prosperity in future years, there was likely to be a high level of migration associated with industrial growth in the economy, a shortage of persons in the young working ages by the 1980s as a consequence of fertility decline in the '60s, and government policy which would support high mobility and high levels of immigration. If, however, there was economic recession, we could expect a slump in industrial growth and employment, an associated return migration to areas which had previously lost population, generally lower levels of internal mobility, and restrictive government policy which would limit immigration so as to prevent immigrants from competing for employment with persons already in the country.

Whether the economy was prosperous or not, we could expect considerable regional variation in migration. For instance, the counties in the Eastern Education Region could grow rapidly in population if the threat of Quebec separation induced emigration to neighbouring areas of Ontario. The failure of overseas markets for important mineral produce could close down industrial operations in important centres such as Sudbury and contribute to an exodus of population from that region. The discovery of important oil or gas reserves or other resources could attract migrants to new and growing centres of employment opportunity and establish areas of attraction which would significantly affect migration patterns across the province.

Because of the complexity of factors influencing migration, we have made two sets of migration assumptions. On the one hand, we assumed that patterns of migration, as shown by census data for 1966-71, involving relatively high internal mobility and substantial immigration from other countries, would continue. On the other hand, we assumed that these levels of migration would not continue and that change in population would be primarily the result of natural increase. The method of generating these assumptions and incorporating them into the resulting two population projections is described in Section B.

The future volume and direction of migration are very difficult to predict. However, the importance of migration for the province's future development is undoubtedly great. In view of the substantial declines which have occurred in fertility, migration in the future is likely to become more, rather than less, important as a determinant of demographic, economic, and industrial growth.

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TABLE 3.0

POPULATION DENSITY FOR COUNTIES, DISTRICTS AND REGIONAL AREAS IN EDUCATION REGIONS OF ONTARIO[1], 1966 AND 1971

County, District or Regional Area	Population		Changes in Land Area 1966-71 (Square Miles)	Density (Persons per Square Mile)	
	1966	1971*		1966	1971
Northwestern Region	223484	224370	- 783	1.1	1.1
Kenora[2]	53995	53230	-	0.4	0.4
Rainy River	25816	25750	- 783	3.6	4.0
Thunder Bay	143673	145390	-	3.4	3.4
Midnorthern Region	298207	330945	- 59	7.6	8.5
Algoma	113561	121937	451	5.9	6.2
Manitoulin	10544	10931	- 167	6.6	7.7
Sudbury	174102	198079	- 343	9.6	11.2
Northeastern Region	274047	283370	2185	3.8	3.8
Cochrane	97334	95836	3347	1.9	1.7
Muskoka[3]	27691	31938	- 27	17.5	20.5
Nipissing	73533	78867	- 538	9.7	11.2
Parry Sound	28335	30244	- 551	6.5	7.9
Timiskaming	47154	46485	- 46	8.0	8.0
Western Region	851325	923414	173	141.8	149.5
Elgin	61912	66608	6	86.0	91.8
Essex	280922	306399	12	397.3	426.2
Huron	54446	52951	19	42.0	40.3
Kent	96406	101118	45	105.0	105.0
Lambton	108236	114314	33	96.3	98.8
Middlesex	249403	282014	58	201.1	217.3
Midwestern Region	643969	716505	- 30	93.1	104.0
Brant	90945	96767	-	216.0	229.6
Bruce	43085	47385	- 87	26.1	30.3
Grey	62592	66403	31	36.6	38.2
Oxford	76018	80349	16	99.2	102.7
Perih	60424	62973	6	71.9	74.5
Waterloo	216728	254037	- 3	420.0	495.1
Wellington	94177	108581	7	92.4	105.8
Niagara Region	799814	835980	- 15	348.0	366.2
Haldimand	30020	32673	- 4	61.5	67.5
Niagara[4]		347328	- 3		486.0
Lincoln	144099			440.1	
Welland	178818			462.1	
Norfolk	50578	54099	8	79.8	84.3
Wentworth[5]	394299	401883	- 16	860.9	910.0
Central Region	2751432	3181650	- 76	333.5	389.2
Dufferin	17108	21200	18	30.7	36.9
Durham	44549	47494	- 10	70.8	76.7
Haliburton	7768	9081	124	5.2	5.6
Halton[6]	140800	190469	17	387.9	500.6
Ontario	170818	196257	- 20	200.3	235.6
Peel	172321	259402	- 6	367.4	559.8
Simcoe	149132	171433	41	89.7	100.6
Victoria	30917	34242	- 278	22.9	32.0
York[7]	2018919	166060	38	2288.0	245.0
Metropolitan Toronto		2086017			8632.

Table 3.0 (cont'd)

County, District or Regional Area	Population 1966	Population 1971*	Changes in Land Area 1966-71 (Square Miles)	Density (Persons per Square Mile) 1966	Density (Persons per Square Mile) 1971
Eastern Region	437365	460465	- 273	48.6	52.8
Frontenac	97138	101692	- 124	60.7	68.9
Grenville	23429	24316	- 1	50.6	52.7
Hastings	94127	99393	- 20	40.5	43.1
Leeds	49129	50093	- 53	54.6	59.1
Lennox & Addington	25202	28359	- 73	21.5	25.9
Northumberland	45074	48162	- 4	61.5	65.3
Peterborough	81959	87804	- 21	57.9	63.0
Prince Edward	21307	20640	15	54.6	51.0
Ottawa Valley Region	681227	746420	- 23	93.7	103.0
Dundas	17106	17457	9	44.5	44.4
Glengarry	18181	18480	3	38.0	38.4
Lanark	41212	42259	45	36.2	35.7
Ottawa-Carleton[8]	407463	471931	117	430.3	443.3
Prescott	27155	27832	- 14	55.0	57.9
Renfrew	89453	90875	- 57	29.7	30.8
Russell[9]	21107	16287	- 114	51.9	55.6
Stormont	59550	61302	- 12	144.5	153.2
ONTARIO	6960870	7703106	10131	20.2	21.7

* Components do not always add to exact total due to rounding procedures in 1971; population data differ slightly between tables of this report for the same reason.

1. See Appendix for full listing of census divisions and subdivisions and their population in 1971.

2. Includes Patricia Portion.

3. The District Municipality of Muskoka, formerly the District of Muskoka.

4. Lincoln and Welland Counties became the Regional Municipality of Niagara in 1970.

5. Part of the population of Burlington is included in 1966 but is excluded in 1971.

6. Excludes part of the population of Burlington in 1966; includes it in 1971.

7. York County, including Toronto in 1966; the Regional Municipality of York and the Municipality of Metropolitan Toronto, as listed, in 1971.

8. The Regional Municipality of Ottawa-Carleton in 1969, formerly Carleton County. The population of Cumberland Township is excluded in 1966, included in 1971.

9. Includes the population of Cumberland Township in 1966, but not in 1971.

Source: Dominion Bureau of Statistics, 1966 Census of Canada, Population, Introductory Report, Vol. 1 (1-1) (Ottawa: Queen's Printer, 1969), Cat. 92-601, Table 2; Statistics Canada, 1971 Census of Canada, Geography: Land Areas and Densities of Statistical Units (Ottawa: Queen's Printer, 1973), Special Bulletin, Cat. 98-701 (SG-1), Table 2; for 1971 population, see Appendix to this Report.

TABLE 3.1

INCREASE IN POPULATION IN URBAN AND RURAL AREAS IN ONTARIO CENSUS DECADES, 1901-1971

	Urban Population		Rural Population		Total Population	
Year	No.	% Increase in Decade	No.	% Increase in Decade	No.	% Increase in Decade
1901	935978	-	1246969	-	2182947	-
1911	1328489	+41.94	1198803	- 3.86	2527292	+15.77
1921	1706632	+28.46	1227030	+ 2.35	2933662	+16.08
1931	2095992	+22.81	1335691	+ 8.86	3431683	+16.98
1941	2338633	+11.58	1449022	+ 8.84	3787655	+10.37
1951	2753226	+17.73	1844316	+27.28	4597542	+21.38
1961	4823529	+75.20	1412563	-23.41	6236092	+35.64
1971	6343630	+31.51	1359475	- 3.76	7703105	+23.52

Source: Computed from data in Dominion Bureau of Statistics, 1961 Census of Canada, Population, Urban and Rural Distribution, Bulletin 1.1-7 (Ottawa: Queen's Printer, 1963), Cat. 92-536, Table 13, and Statistics Canada, 1971 Census of Canada, Population, Urban and Rural Distribution, Bulletin 1.1-9 (Ottawa: Information Canada, 1973), Cat. 92-709, Table 11.

TABLE 3.2

PERCENTAGE DISTRIBUTION OF URBAN AND RURAL POPULATION FOR EDUCATION REGIONS IN ONTARIO, FOR 1961 AND 1971

Region/Province	1961				1971			
	Rural		Urban		Rural		Urban	
	Number	%	Number	%	Number	%	Number	%
Northwestern Region	63526	29	152997	71	54675	24	169695	76
Midnorthern Region	87018	30	201428	70	81050	24	249900	76
Northeastern Region	115298	42	158244	58	89245	31	194125	69
Western Region	227990	29	559875	71	242225	26	681185	74
Midwestern Region	197337	34	380950	66	208820	29	507680	71
Niagara Region	149136	20	579788	80	108190	13	727795	87
Central Region	234646	10	2088859	90	232480	7	2949175	93
Eastern Region	177748	43	236008	57	184550	40	275910	60
Ottawa Valley Region	159864	26	465380	74	158240	21	588180	79
ONTARIO	1412563	23	4823529	77	1359475	18	6343645	82

Source: Computed from data obtained from Dominion Bureau of Statistics, 1961 Census of Canada, Population, Rural and Urban Distribution, Vol. 1.1-7 (Ottawa: Queen's Printer, 1963), Cat. 92-536, Table 13, and Statistics Canada, 1971 Census of Canada, Population, Urban and Rural Distributions, Bulletin 1.1-9 (Ottawa: Information Canada, 1973), Cat. 92-709, Table 11.

TABLE 3.3

PERCENTAGE DISTRIBUTION OF URBAN AND RURAL POPULATION FOR AREAS IN EDUCATION REGIONS, 1961 AND 1971

County, District or Regional Area	1961				1971			
	Rural		Urban		Rural		Urban	
	Number	%	Number	%	Number	%	Number	%
Northwestern Region	63526	29	152997	71	54675	24	169695	76
Kenora[1]	26720	52	24754	48	26815	50	26415	50
Rainy River	9208	35	17323	65	8625	33	17125	67
Thunder Bay	27598	20	110920	80	19235	13	126155	87
Midnorthern Region	87018	30	201428	70	81050	24	249900	76
Algoma	29912	27	81496	73	19700	16	102235	84
Manitoulin	9649	86	1527	14	9370	86	1565	14
Sudbury	47457	29	118405	71	51980	26	146100	74
Northeastern Region	115298	42	158244	58	89245	31	194125	69
Cochrane	32321	34	63345	66	24535	26	71305	74
Muskoka[2]	17512	66	9193	34	8115	25	23820	75
Nipissing	27421	39	43147	61	20135	26	58730	74
Parry Sound	20284	69	9348	31	20990	69	9250	31
Timiskaming	17760	35	33211	65	15470	33	31020	67
Western Region	227990	29	559875	71	242225	26	681185	74
Elgin	32117	51	30745	49	32475	49	34135	51
Essex	48048	19	210170	81	59840	20	246560	80
Huron	35679	66	18126	34	33360	63	19590	37
Kent	38611	43	50816	57	40290	40	60830	60
Lambton	33649	33	68432	67	34570	30	79745	70
Middlesex	39886	18	181536	82	41690	15	240325	85

Table 3.3 (cont'd)

County, District or Regional Area	1961 Rural Number	%	1961 Urban Number	%	1971 Rural Number	%	1971 Urban Number	%
Midwestern Region	197337	34	380950	66	208820	29	507680	71
Brant	20204	24	63635	76	22360	23	74405	77
Bruce	28028	65	15008	35	29815	63	17575	37
Grey	31982	52	30023	48	32900	50	33505	50
Oxford	34274	49	36225	51	35475	44	44870	56
Perth	24473	43	32979	57	25400	40	37575	60
Waterloo	28771	16	147983	84	31250	12	222790	88
Wellington	29605	35	55097	65	31620	29	76960	71
Niagara Region	149136	20	579788	80	108190	13	727795	87
Haldimand	18743	66	9454	34	20535	63	12135	37
Niagara[3]	62888	22	228.27	78	12450	4	334875	96
Norfolk	33009	65	17466	35	33605	62	20500	38
Wentworth[4]	34496	10	324341	90	41600	10	360285	90
Central Region	234646	10	2088859	90	232480	7	2949175	93
Dufferin	10263	64	5832	36	11335	53	9365	47
Durham	21299	53	18617	47	26450	56	21045	44
Haliburton	8928	100	-	-	9080	100	-	-
Halton[5]	12021	11	94946	89	11745	6	178720	94
Ontario	28168	21	107727	79	36395	19	159865	81
Peel	24586	22	86989	78	20755	8	238650	92
Simcoe	69279	49	71992	51	67065	39	104370	61
Victoria	15782	53	13968	47	18365	54	15880	46
York[6] (includes Toronto)	44320	2	1688788	98	31290	1	2220780	99

Table 3.3 (cont'd)

County, District or Regional Area	1961				1971			
	Rural		Urban		Rural		Urban	
	Number	%	Number	%	Number	%	Number	%
Eastern Region	177748	43	236008	57	184550	40	275910	60
Frontenac	24115	27	63419	73	28085	28	73605	72
Grenville	13595	59	9269	41	14870	61	9445	39
Hastings	37651	40	55726	60	32265	32	67130	68
Leeds	23034	49	23855	51	24045	48	26050	52
Lennox and Addington	19217	81	4500	19	19565	69	8790	31
Northumberland	24029	57	17863	43	27540	57	20625	43
Peterborough	20925	27	55450	73	22415	26	65390	74
Prince Edward	15182	72	5926	28	15765	76	4875	24
Ottawa Valley Region	159864	26	465380	74	158240	21	588180	79
Dundas	11529	67	5633	33	11350	65	6105	35
Glengarry	16620	86	2597	14	15240	82	3240	18
Lanark	17287	43	23026	57	15760	37	26495	63
Ottawa-Carleton[7]	27882	8	325050	92	42990	9	428940	91
Prescott	14446	53	12780	47	14230	51	13605	49
Renfrew	42406	47	47229	53	34640	38	56240	62
Russell[8]	15466	74	5426	26	9845	60	6440	40
Stormont	14228	25	43639	75	14185	23	47115	77

1. Includes Patricia Portion.   2. The District Municipality of Muskoka, formerly the District of Muskoka.

3. Lincoln and Welland Counties combined in 1961; the Regional Municipality of Niagara in 1971.

4. Part of the population of Burlington which was included in 1961 is excluded in 1971.

5. Excludes part of the population of Burlington in 1961; includes it in 1971.

6. York County included Toronto in 1961; data for 1971 combine the Regional Municipality of York with the Municipality of Metropolitan Toronto.

7. Excludes Cumberland Township in 1961; includes it in 1971.   8. Includes Cumberland Township in 1961; excludes it in 1971.

Source: Computed from data obtained from Statistics Canada, 1971 Census of Canada, Population, Urban and Rural Distributions, Bulletin 1.1-9 (Ottawa: Information Canada, 1973), Cat. 92-709, Table 11, and Dominion Bureau of Statistics, 1961 Census of Canada, Population, Rural and Urban Distribution, Vol. 1.1-7 (Ottawa: Queen's Printer, 1963), Cat. 92-536, Table 13.

TABLE 3.4

NET MIGRATION AS A PERCENTAGE OF COUNTY, DISTRICT AND REGIONAL AREA POPULATION GROWTH BY EDUCATION REGION, 1966-1971

County, District or Regional Area	Change in Population 1966-1971	Estimated Net Migration[1]	Net Migration as % of Population Change
Northwestern Region	886	-7461	- 842.1
Kenora[2]	- 765	- 291	38.0
Rainy River	- 66	-1658	2512.1
Thunder Bay	1717	-5512	- 321.0
Midnorthern Region	32738	8475	25.9
Algoma	8374	27	0.3
Manitoulin	386	- 79	- 20.5
Sudbury	23978	8527	35.6
Northeastern Region	9323	-3136	33.6
Cochrane	-1499	-8263	551.2
Muskoka[3]	4249	3349	78.8
Nipissing	5332	801	15.0
Parry Sound	1910	902	47.2
Timiskaming	- 669	75	- 11.2
Western Region	72090	22966	31.9
Elgin	4698	1838	39.1
Essex	25478	7713	30.3
Huron	-1491	-3380	260.2
Kent	4714	290	- 6.1
Lambton	6079	- 216	- 3.6
Middlesex	32612	17301	53.1
Midwestern Region	72536	32382	44.6
Brant	5825	1156	19.8
Bruce	4300	2602	60.5
Grey	3813	1568	41.1
Oxford	4332	470	10.8
Perth	2551	- 364	- 14.3
Waterloo	37312	18710	50.1
Wellington	14403	8240	57.2
Niagara Region	38166	3970	10.4
Haldimand	2655	1020	38.4
Niagara[4]	24408	3610	14.8
Norfolk	3522	852	24.2
Wentworth[5]	7581	-1512	- 19.9
Central Region	430218	237054	55.1
Dufferin	4092	2918	71.3
Durham	2941	1478	50.3
Haliburton	1312	1046	79.7
Halton[6]	49670	24614	49.5
Ontario	25437	12168	47.8
Peel	87079	63918	73.4
Simcoe	22303	14113	63.3
Victoria	3323	2208	66.4
York[7] (Toronto included)	234061	114591	49.0

Table 3.4 (cont'd)

County, District or Regional Area	Change in Population 1966-1971	Estimated Net Migration	Net Migration as % of Population change
Eastern Region	23100	1637	7.1
Frontenac	4557	- 688	- 15.1
Grenville	886	- 119	- 13.4
Hastings	5268	249	4.7
Leeds	966	-1117	- 115.6
Lennox & Addington	3158	1569	49.7
Northumberland	3086	1284	41.6
Peterborough	5846	1786	30.5
Prince Edward	- 667	-1327	198.9
Ottawa Valley Region	65193	27300	41.9
Dundas	349	- 635	- 181.9
Glengarry	299	- 392	- 131.1
Lanark	1048	- 309	- 29.5
Ottawa-Carleton[8]	64467	33198	51.5
Prescott	675	- 633	- 93.8
Renfrew	1422	-3424	- 240.8
Russell[9]	-4817	426	- 8.8
Stormont	1750	- 931	- 53.2
ONTARIO	742236	323187	43.5

1. Net migration as estimated indirectly by comparing census counts with the expected totals of population by age and sex, as computed by the survival rate method.

2. Includes Patricia Portion.

3. The District of Muskoka became the District Municipality of Muskoka in 1971.

4. Lincoln and Welland Counties combined in 1966; the Regional Municipality of Niagara in 1971.

5. Part of the population of Burlington which was included in 1966 was excluded in 1971, so that the net loss would have been smaller if boundaries had been consistent.

6. Excludes part of the population of Burlington in 1966; includes it in 1971.

7. Combines the Regional Municipality of York and the Municipality of Metropolitan Toronto in 1971 in order to achieve consistency with data for the County of York which included Toronto in 1966.

8. The Regional Municipality of Ottawa-Carleton, including Cumberland Township in 1971; Cumberland Township is not included in 1966.

9. Excludes Cumberland Township in 1971, but includes it in 1966, so that net migration to the area is probably underestimated.

Source: Calculated from data on births and deaths provided by Statistics Canada and the Office of the Registrar General for Ontario, and population for counties, districts and regional areas as given in Table 3.0.

TABLE 3.5

PERCENT DISTRIBUTION OF ONTARIO POPULATION 5 YEARS AND OVER BY MIGRATION STATUS, 1971, FOR EDUCATION REGIONS

Migrant Status	REGION									
	Northwestern	Midnorthern	Northeastern	Western	Midwestern	Niagara	Central	Eastern	Ottawa Valley	ONTARIO
	%	%	%	%	%	%	%	%	%	%
Population 5 years and over	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Non-Migrants	81.42	76.18	75.75	77.65	74.33	79.97	72.93	73.64	73.58	74.98
Migrants:	18.58	23.83	24.25	22.35	25.67	20.03	27.07	26.36	26.42	25.01
a) from same provice	56.94	66.02	73.06	65.47	71.21	62.72	47.82	70.24	46.78	14.10
b) from different province	22.93	16.41	14.10	9.26	8.58	9.25	12.33	12.84	29.94	3.42
c) from outside Canada	13.76	11.68	6.03	20.48	15.56	22.94	35.23	11.14	16.81	6.22
d) place of residence not stated	6.40	5.89	6.81	4.79	4.65	5.09	4.62	5.78	6.47	1.28

Source: Compiled from Statistics Canada, 1971 Census of Canada, Population, Internal Migration, Bulletin 1.2-7 (Ottawa: Information Canada, 1974), Cat. 92-719, Table 34.

TABLE 3.6

DISTRIBUTION OF POPULATION 5 YEARS AND OVER BY MIGRATION STATUS, 1971, FOR COUNTIES, DISTRICTS AND REGIONAL AREAS, BY EDUCATION REGIONS

Migrant Status	Northwestern Region		County, District or Regional Area					
			Kenora[1]		Rainy River		Thunder Bay	
	Number	%	Number	%	Number	%	Number	%
Population 5 years and over	203,635	100.00	47,410	100.00	23,280	100.00	132,945	100.00
Non-Migrants	165,795	81.42	36,805	77.63	18,250	78.39	110,740	83.30
Migrants	37,840	18.58	10,605	22.37	5,030	21.61	22,205	16.70
a) from same province	21,540	56.94	5,720	53.94	2,925	58.21	12,895	67.23
b) from different province	8,675	22.93	3,160	29.80	1,185	23.58	4,330	19.50
c) from outside Canada	5,205	13.76	955	9.01	595	11.84	3,655	16.46
d) place of residence not stated	2,420	6.40	770	7.26	325	6.47	1,325	5.97

Table 3.6 (cont'd)

Migrant Status	Midnorthern Region		County, District or Regional Area					
			Algoma		Manitoulin		Sudbury	
	Number	%	Number	%	Number	%	Number	%
Population 5 years and over	298,695	100.00	110,225	100.00	9,920	100.00	178,550	100.00
Non-Migrants	227,525	76.18	89,415	81.12	8,030	81.03	130,080	72.86
Migrants	71,170	23.83	20,810	18.88	1,890	19.07	48,470	27.15
a) from same province	46,985	66.02	13,570	65.21	1,575	83.55	31,840	65.69
b) from different province	11,675	16.41	3,175	15.26	15	.80	8,485	17.51
c) from outside Canada	8,315	11.68	2,950	14.18	200	10.61	5,165	10.66
d) place of residence not stated	4,195	5.89	1,115	5.36	100	5.31	2,980	6.15

Table 3.6 (cont'd)

Migrant Status	Northeastern Region		County, District or Regional Area									
			Cochrane		Muskoka[2]		Nipissing		Parry Sound		Timiskaming	
	Number	%	Number	%	Number	%	Number	%	Number	%	Number	%
Population 5 years and over	258455	100.00	86445	100.00	29755	100.00	71740	100.00	28075	100.00	42440	100.00
Non-Migrants	195770	75.75	68850	79.65	20920	70.31	52500	73.18	20895	74.43	32605	76.83
Migrants	62685	24.25	17595	20.35	8835	29.69	19240	26.82	7180	25.57	9835	23.17
a) from same province	45795	73.06	12025	68.34	7620	86.25	12760	66.32	6005	83.64	7385	75.09
b) from different province	8840	14.10	3325	18.90	370	4.19	3355	17.44	265	3.69	1525	15.51
c) from outside Canada	3780	6.03	1110	6.31	440	4.98	1435	7.46	415	5.78	380	3.86
d) place of residence not stated	4270	6.81	1135	6.45	405	4.58	1690	8.78	495	6.89	545	5.54

Table 3.6 (cont'd)

Migrant Status	Western Region		County, District or Regional Area											
			Elgin		Essex		Huron		Kent		Lambton		Middlesex	
	Number	%	Number	%	Number	%	Number	%	Number	%	Number	%	Number	%
Population 5 years and over	844355	100.00	60875	100.00	279450	100.00	48545	100.00	92430	100.00	104575	100.00	258480	100.00
Non-Migrants	655660	77.65	46245	75.97	226100	80.91	36505	75.20	74425	80.52	82080	78.49	190305	73.62
Migrants	188695	22.35	14630	24.03	53350	19.09	12040	24.80	18005	19.48	22495	21.51	68175	26.38
a) from same province	123530	65.47	11035	75.43	30575	57.31	9875	82.02	13915	77.29	15620	69.44	42510	62.35
b) from different province	17480	9.26	895	6.12	4985	9.34	645	5.36	1255	6.97	2395	10.65	7305	10.72
c) from outside Canada	38650	20.48	1940	13.26	15480	29.02	850	7.06	2125	11.80	3425	15.22	14830	21.75
d) place of residence not stated	9035	4.79	760	5.19	2310	4.33	670	5.56	710	3.94	1055	4.69	3530	5.18

Table 3.6 (cont'd)

Migrant Status	Northwestern Region		County, District or Regional Area													
			Brant		Bruce		Grey		Oxford		Perth		Waterloo		Wellington	
	Number	%	Number	%	Number	%	Number	%	Number	%	Number	%	Number	%	Number	%
Population 5 years and over	655240	100.00	88875	100.00	43640	100.00	61230	100.00	73795	100.00	57955	100.00	230475	100.00	99270	100.00
Non-Migrants	487070	74.33	72195	81.23	31990	73.30	45705	74.64	56340	76.35	46095	79.54	161830	70.22	72915	73.45
Migrants	168170	25.67	16680	18.77	11650	26.70	15525	25.36	17455	23.65	11860	20.46	68645	29.78	26355	26.55
a) from same province	119750	71.21	11565	69.33	9645	82.79	13210	85.09	13550	77.63	9565	80.65	43055	62.72	19160	72.70
b) from different Province	14440	8.58	1600	9.59	625	5.36	550	3.54	1300	7.45	685	5.78	7255	10.57	2425	9.20
c) from outside Canada	26165	15.56	2695	16.16	735	6.31	740	4.77	1730	9.91	1135	9.57	15530	22.62	3600	13.66
d) place of residence not stated	7815	4.65	820	4.92	645	5.54	1025	6.60	875	5.01	475	4.00	2805	4.09	1170	4.44

Table 3.6 (cont'd)

Migrant Status	Niagara Region		County, District or Regional Area							
			Haldimand		Niagara[3]		Norfolk		Wentworth	
	Number	%	Number	%	Number	%	Number	%	Number	%
Population 5 years and over	768,185	100.00	29,935	100.00	318,615	100.00	49,605	100.00	370,030	100.00
Non-Migrants	614,310	79.97	22,425	74.91	258,755	81.21	36,650	73.88	296,480	80.12
Migrants	153,875	20.03	7,510	25.09	59,860	18.79	12,955	26.12	73,550	19.88
a) from same province	96,515	62.72	6,135	81.69	38,315	64.01	10,665	82.32	41,400	56.29
b) from different province	14,225	9.25	475	6.32	6,530	10.91	735	5.67	6,485	8.82
c) from outside Canada	35,305	22.94	470	6.26	11,885	19.85	1,040	8.03	21,910	29.79
d) place of residence not stated	7,830	5.09	430	5.73	3,130	5.23	515	3.98	3,755	5.10

Table 3.6 (cont'd)

Migrant Status	Central Region		County, District or Regional Area																			
			Dufferin		Durham		Haliburton		Halton		Ontario		Peel		Simcoe		Toronto[4]		Victoria		York[5]	
	Number	%	Number	%	Number	%	Number	%	Number	%	Number	%	Number	%	Number	%	Number	%	Number	%	Number	%
Population 5 years and over	2919200	100.00	19345	100.00	43670	100.00	8480	100.00	173145	100.00	178315	100.00	232390	100.00	157665	100.00	1922525	100.00	31730	100.00	151935	100.00
Non-Migrants	2129050	72.93	12095	62.52	32400	74.19	5765	67.98	110725	63.95	125645	70.46	130220	56.04	104505	66.28	1487285	77.36	22945	72.31	97465	64.15
Migrants	790150	27.07	7250	37.48	11270	25.81	2715	32.02	62420	36.05	52670	29.54	102170	43.96	53160	33.72	435240	22.64	8785	27.69	54470	35.85
a) from same province	377815	47.82	5900	81.38	9405	83.45	2435	89.69	41560	66.58	39005	74.06	67325	65.90	39310	73.95	122415	28.12	7390	84.12	43070	79.07
b) from different province	97400	12.33	325	4.48	610	5.41	100	3.68	7450	11.94	4020	7.63	11930	11.68	5085	9.56	64415	14.80	335	3.81	3130	5.75
c) from outside Canada	278395	35.23	655	9.03	775	6.88	65	2.39	10375	16.62	7230	13.73	18415	18.02	4315	8.12	230590	52.98	510	5.81	5465	10.03
d) place of residence not stated	36540	4.62	370	5.10	480	4.26	115	4.24	3035	4.86	2415	4.58	4500	4.40	4450	8.37	17820	4.09	550	6.26	2805	5.15

Table 3.6 (cont'd)

Migrant Status	Eastern Region		County, District or Regional Area															
			Frontenac		Grenville		Hastings		Leeds		Lennox and Addington		Northumber-land		Peterborough		Prince Edward	
	Number	%	Number	%	Number	%	Number	%	Number	%	Number	%	Number	%	Number	%	Number	%
Population 5 years and over	423,475	100.00	93,415	100.00	22,405	100.00	91,550	100.00	46,215	100.00	25,785	100.00	44,225	100.00	80,760	100.00	19,120	100.00
Non-Migrants	311,865	73.64	67,500	72.26	16,970	75.74	64,350	70.29	35,925	77.73	18,025	69.90	31,490	71.20	63,265	78.34	14,340	75.00
Migrants	111,610	26.36	25,915	27.74	5,435	24.26	27,200	29.71	10,290	22.27	7,760	30.10	12,735	28.80	17,495	21.66	4,780	25.00
a) from same province	78,390	70.24	14,750	56.92	4,090	75.25	17,760	65.29	7,825	76.04	6,230	80.28	9,995	78.48	13,895	79.42	3,845	80.44
b) from different province	14,340	12.84	4,160	16.05	720	13.25	4,550	16.73	1,090	10.59	805	10.37	1,390	10.91	1,265	7.23	360	7.53
c) from outside Canada	12,430	11.14	5,145	19.85	360	6.62	3,200	11.76	775	7.53	425	5.48	870	6.83	1,390	7.95	265	5.54
d) place of residence not stated	6,450	5.78	1,860	7.18	265	4.87	1,690	6.21	600	5.83	300	3.87	480	3.77	945	5.40	310	6.49

Table 3.6 (cont'd)

Migrant Status	Ottawa Valley Region		County, District or Regional Area															
			Dundas		Glengarry		Lanark		Ottawa-Carleton[6]		Prescott		Renfrew		Russell		Stormont	
	Number	%	Number	%	Number	%	Number	%	Number	%	Number	%	Number	%	Number	%	Number	%
Population 5 years and over	684,255	100.00	15,990	100.00	17,060	100.00	39,220	100.00	431,560	100.00	25,645	100.00	83,160	100.00	14,825	100.00	56,795	100.00
Non-Migrants	503,490	73.58	12,755	79.77	13,515	79.22	30,980	78.99	303,280	70.28	21,270	82.94	62,090	74.66	11,895	80.24	47,705	84.00
Migrants	180,765	26.42	3,235	20.23	3,545	20.78	8,240	21.01	128,280	29.72	4,375	17.06	21,070	25.34	2,930	19.76	9,090	16.00
a) from same province	84,570	46.78	2,570	79.44	12,200	62.06	6,470	78.52	50,910	39.69	2,595	59.31	12,070	57.28	2,115	72.18	5,640	62.05
b) from different province	54,120	29.94	355	10.97	1,035	29.20	750	9.10	43,570	33.96	1,320	30.17	4,410	20.93	480	16.38	2,200	24.20
c) from outside Canada	30,380	16.81	170	5.26	140	3.95	560	6.80	25,650	20.00	200	4.57	2,810	13.34	130	4.44	720	7.92
d) place of residence not stated	11,695	6.47	140	4.33	170	4.79	460	5.58	8,150	6.35	260	5.94	1,780	8.45	205	7.00	530	5.83

1. Includes Patricia Portion.
2. The District Municipality of Muskoka, formerly the District of Muskoka.
3. The Regional Municipality of Niagara, formerly Lincoln and Welland Counties.
4. The Municipality of Metropolitan Toronto, formerly a part of York County.
5. The Regional Municipality of York, formerly a part of York County.
6. The Regional Municipality of Ottawa-Carleton, including Cumberland Township. See Appendix for territorial adjustment to former Carleton County, when the Regional Municipality was created.

Source: Statistics Canada, 1971 Census of Canada, Internal Migration, Bulletin 1.2-7 (Ottawa: Information Canada, 1974), Cat. 92-719, Table 34.

Table 3.7

NUMBER OF IN-MIGRANTS, PATTERN OF MIGRATION AND ESTIMATED NET MIGRANTS: COUNTIES, DISTRICTS AND REGIONAL AREAS IN EDUCATION REGIONS, 1966-71

County, District or Regional Area	Migrants[1] 5 Years and Over 1966-71	Migration[2] Pattern, 1951-71	Net Migration[3] 1966-71
Northwestern Region	37830	+ + - -	-7461
Kenora[4]	10605	+ - - -	- 291
Rainy River	5025	+ - - -	-1658
Thunder Bay	22200	+ + - -	-5512
Midnorthern Region	71165	+ + - +	8475
Algoma	20810	+ + - +	27
Manitoulin	1885	- - - -	- 79
Sudbury	48470	+ + - +	8527
Northeastern Region	62680	- - - +	-3136
Cochrane	17595	- - - -	-8263
Muskoka[5]	8835	- - - +	3349
Nipissing	19240	+ + - +	801
Parry Sound	7180	- - - +	902
Timiskaming	9830	- - - +	75
Western Region	188705	+ + + +	22966
Elgin	14635	+ + - +	1838
Essex	53355	+ - + +	7713
Huron	12045	- - - -	-3380
Kent	18000	- - + -	- 290
Lambton	22495	+ + - -	- 216
Middlesex	68175	+ + + +	17301
Midwestern Region	168165	+ + + +	32382
Brant	16685	- + + +	1156
Bruce	11645	- - - +	2602
Grey	15515	- - - +	1568
Oxford	17455	+ + + +	470
Perth	11860	- - - -	- 364
Waterloo	68650	+ + + +	18710
Wellington	26355	+ + + +	8240
Niagara Region	153890	+ + + +	3970
Haldimand	7515	- + + +	1020
Niagara[6]	59865	+ + + +	3610
Norfolk	12955	- + - +	852
Wentworth[7]	73555	+ + + -	-1512
Central Region	790145	+ + + +	237054
Dufferin	7245	+ + + +	2918
Durham	11270	+ + + +	1478
Haliburton	2705	- + - +	1046
Halton[8]	62430	+ + + +	24614
Ontario	52675	+ + + +	12168
Peel	102170	+ + + +	63918
Simcoe	53160	+ + - +	14113
Victoria	8785	- + + +	2208
York[9] (Toronto included)	489705	+ + + +	114591

Table 3.7 (cont'd)

County, District or Regional Area	Migrants[1] 5 Years and Over 1966-71	Migration[2] Pattern, 1951-71	Net Migration[3] 1966-71
Eastern Region	76585	+ + - +	- 106
Frontenac	25910	+ + + -	- 688
Grenville	5435	+ + - -	- 119
Hastings	27195	+ + - +	249
Leeds	10285	+ + - -	-1117
Lennox & Addington	7760	+ + + +	1569
Northumberland	12730	+ + + +	1284
Peterborough	17495	+ + + +	1786
Prince Edward	4775	+ - - -	-1327
Ottawa Valley Region	180765	+ + + +	27300
Dundas	3225	+ - - -	- 635
Glengarry	3545	- - - -	- 392
Lanark	8240	+ + - -	- 309
Ottawa-Carleton[10]	128280	+ + + +	33198
Prescott	4380	- - - -	- 633
Renfrew	21065	+ + - -	-3424
Russell[11]	2940	- - - +	426
Stormont	9090	+ - - -	- 931
ONTARIO	1764920	+ + + +	321444

1. Components do not add to the Ontario total due to rounding procedures employed for the 1971 Census.

2. Gains or losses in net migration, as estimated by the vital statistics method in Patterns and Trends in Ontario Population, pp. 207-8, for the years 1951-56, 1956-61 and 1961-66, and by the survival rate method for 1966-71, in the present project.

3. Net migration, as estimated indirectly by comparing census counts with the expected totals of migrants by age and sex, as computed by the survival rate method.

4. Includes Patricia Portion.

5. The District Municipality of Muskoka in 1971, formerly the District of Muskoka.

6. Lincoln and Welland Counties combined in 1966; the Regional Municipality of Niagara in 1971.

7. Part of the population of Burlington which was included in 1966 was excluded in 1971, so that the net loss would have been smaller if boundaries had been consistent.

8. Excludes part of the population of Burlington in 1966; includes it in 1971.

9. Combines the Regional Municipality of York and the Municipality of Metropolitan Toronto in 1971 in order to achieve consistency with data for the County of York, which included Toronto in 1966.

10. The Regional Municipality of Ottawa-Carleton, including Cumberland Township in 1971. Data for Carleton County in 1966 exclude Cumberland Township, so that the in-migration is exaggerated by this boundary change.

11. Excludes Cumberland Township in 1971 but includes it in 1966.

Source: Statistics Canada, 1971 Census of Canada, Internal Migration, Bulletin 1.2-7 (Ottawa: Information Canada, 1974), Cat. 92-719, Table 34; B. Macleod et al., Patterns and Trends in Ontario Population (Toronto: The Ontario Institute for Studies in Education, 1972), pp. 207-8; Betty Macleod, "Demographic Bases for Forecasting Educational Requirements in Ontario", a paper prepared for the Conference on Population Projections and Related Futures, held at the Ontario Institute for Studies in Education in November, 1974 (the paper gives revisions for earlier estimates presented in Report for Year 1 of this project).

Chapter Four
Population Growth, Structure, and Composition

Introduction

Trends in fertility, mortality, and migration are not in themselves sufficient to entirely define all the population characteristics of the province which are relevant to education. How rapidly the population is growing, the age structure of the population, proportions of dependent age groups, labour force participation by both men and women, the ethnic composition of the population, and the existing level of educational attainment are some of the additional determinants of education needs. Data from the 1971 Census relating to these and other characteristics became increasingly available during the period when this report was under preparation, but it was not possible to process all this information during the closing stages of the project. However, some relevant data have been brought together in this chapter in order to provide additional insights into characteristics of Ontario population which help to define both the total demand for, and kind of, education required.

Population Growth

Among the more obvious influences is the rate of population growth. A very rapid rate of growth, whether the result of a high rate of natural increase or of a high level of in-migration, is likely to impose strains upon existing education facilities; buildings, teaching staff, library, and other services are likely to be strained to capacity and education standards may deteriorate as a result. In contrast, a slow rate of growth may lead to a decline in the school age population and result in unused school facilities and an over-supply of teachers, all of which are expensive to maintain but difficult to adjust as a consequence of structural and social rigidities.

The rate of growth of Ontario population has been increasing over time (see Table 4.0). From less than 1% before 1900, the annual growth rate climbed to 1.58% during the decade 1921-31, dropped back to 0.99% during 1931-41, then climbed to 3.09% during 1951-61. The rate was especially high during 1951-56 at 3.29%; it declined to 2.90% in 1956-61 and by 1966-71 had fallen to 2.18%.

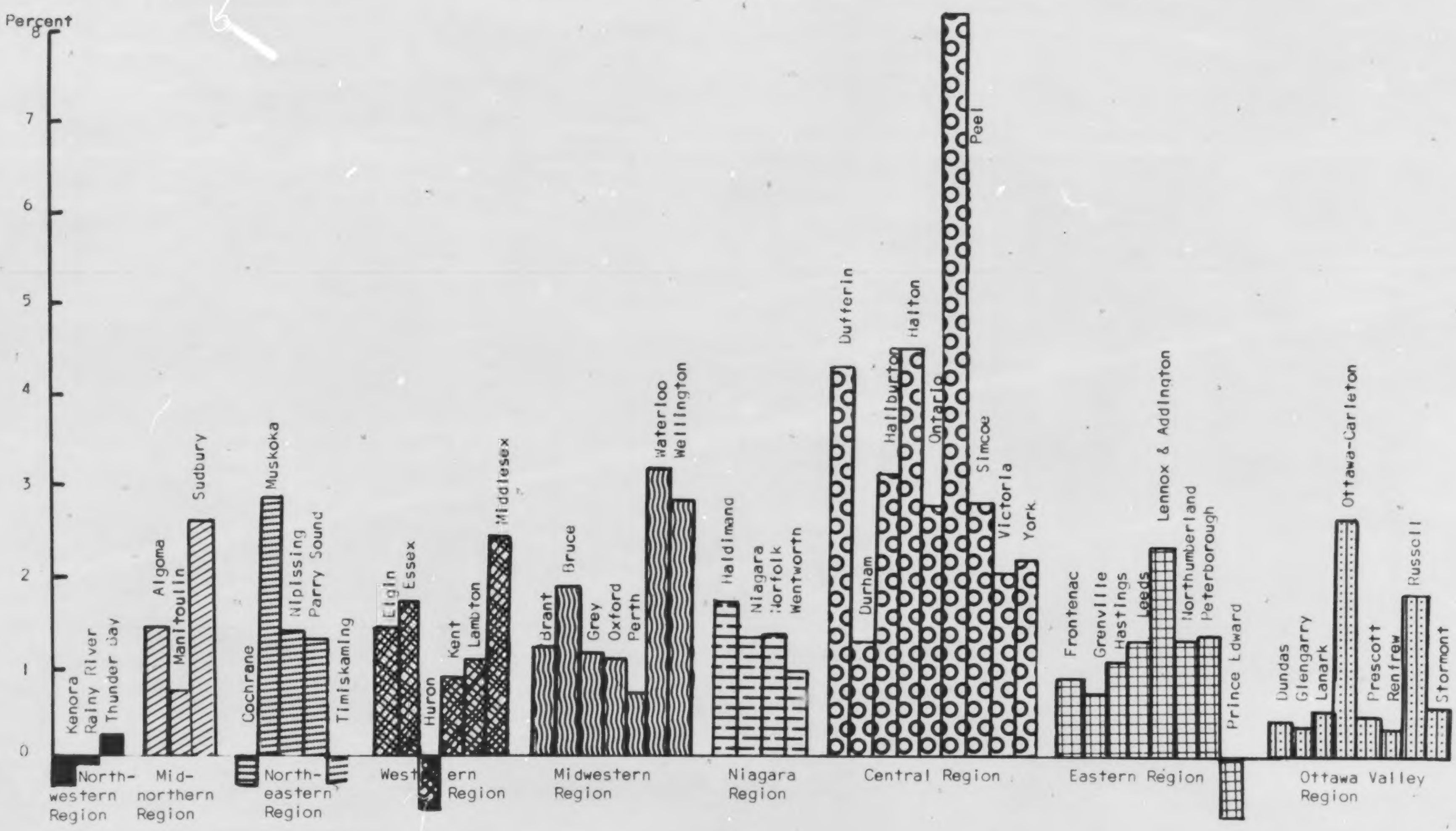
As Table 4.1 shows, natural increase has been by far the most important contributor to Ontario's population growth, accounting for 60% or more of the growth since the beginning of the century. Since World War II, migration has been a more important element in population growth, particularly in the 1951-61 decade when large numbers of immigrants arrived from overseas.

Among the counties, districts, and regional areas of the province, the fastest growing between 1966-71 was Peel, which would double its population in less than ten years if its rate of growth continued (Table 4.2). Dufferin and Halton, also in the Central Region, showed very high rates of population growth as well, and were likely to double their populations in the next two decades. This was the case for Waterloo County in the Midwestern Region as well. Haliburton, Ontario, and Simcoe (Central), along with Wellington (Midwestern), Muskoka (Northeastern), Ottawa-Carleton (Ottawa Valley), and Sudbury (Midnorthern), would all double their populations in less than three decades if their rates continued to hold. At the other extreme--areas where growth was negative--were Kenora and Rainy River in the Northwestern Region, Cochrane and Timiskaming in the Northeastern Region, Huron in the Western Region, and Prince Edward in the Eastern Region. Figure 4A summarizes these growth trends.

Population Structure

The rate of growth of population affects population structure, in that it increases or decreases certain age and sex groups of the population in relation to other sectors. When fertility goes up, the younger age groups in the population increase in relation to older age groups; when fertility declines, the older age groups become proportionately larger over time. The consequences of fertility decline for Ontario can be seen in Figure 4B, where the base of the population pyramids for Ontario and the education

FIGURE 4A: ANNUAL RATE OF POPULATION GROWTH (LOGARITHMIC) FOR COUNTIES, DISTRICTS AND REGIONAL AREAS IN EDUCATION REGIONS OF ONTARIO, 1966-1971



Source: Table 4.2

regions all have been pinched as a result of fewer births during the '60s than in earlier years.

Migration in or out of a region may affect all age groups, but is likely to affect the working ages most. Some of the effects of migration in Ontario can be seen in Figure 4B. In the Central Region particularly, substantial in-migration probably accounts for higher proportions of population aged 20 to 55 than elsewhere. The difference is most apparent in relation to the Eastern Region, which experienced out-migration.

If the proportion of persons of working age is small in relation to the proportion of persons of school-attending age, there may be difficulty in raising needed taxes for educational purposes and in obtaining an adequate supply of trained teachers. These sorts of problems are frequently examined in terms of the ratio of persons who are likely to be dependent on other persons. If we neglect that small element of the population which is unable to care for itself at any age, then the two chief groups of dependants can be broadly classed as persons under 20 years of age, and persons 65 and over. Of course, some individuals within both groups are completely or partially self-supporting. The classification serves as only a first approach to analysing the general load of dependency.

Figure 4C shows the ratio of dependants to working age (20 to 64) persons across the counties, districts, and regional areas of Ontario, arranged by education regions. The absolute height of the bars indicates the total dependency load and the division of the bars indicates the proportion of dependency for older age persons compared with that for persons under 20. In 1971 Prescott had the highest dependency load, with 1.4 dependants for every person of working age; there was about one person under 20 for every individual aged 20 to 64, and one person 65 or over for every two persons aged 20 to 64. In Manitoulin as well, dependency was very high, with slightly over one and one quarter dependants, most of whom were under 20 years of age, for every person of working age. This clearly reflected the high levels of fertility for the district. Dependency tended to be lowest in Brant, Victoria, Bruce, and Durham, where there was about one dependant for every two persons of working age, and only slightly more than one old-age dependant for every 10 workers.

The dependency ratios for education regions are summarized in Table 4.3. It can be seen from that table that highest dependency was found in

FIGURE 4B: SEX AND AGE DISTRIBUTION OF POPULATION IN EDUCATION REGIONS OF ONTARIO, 1971

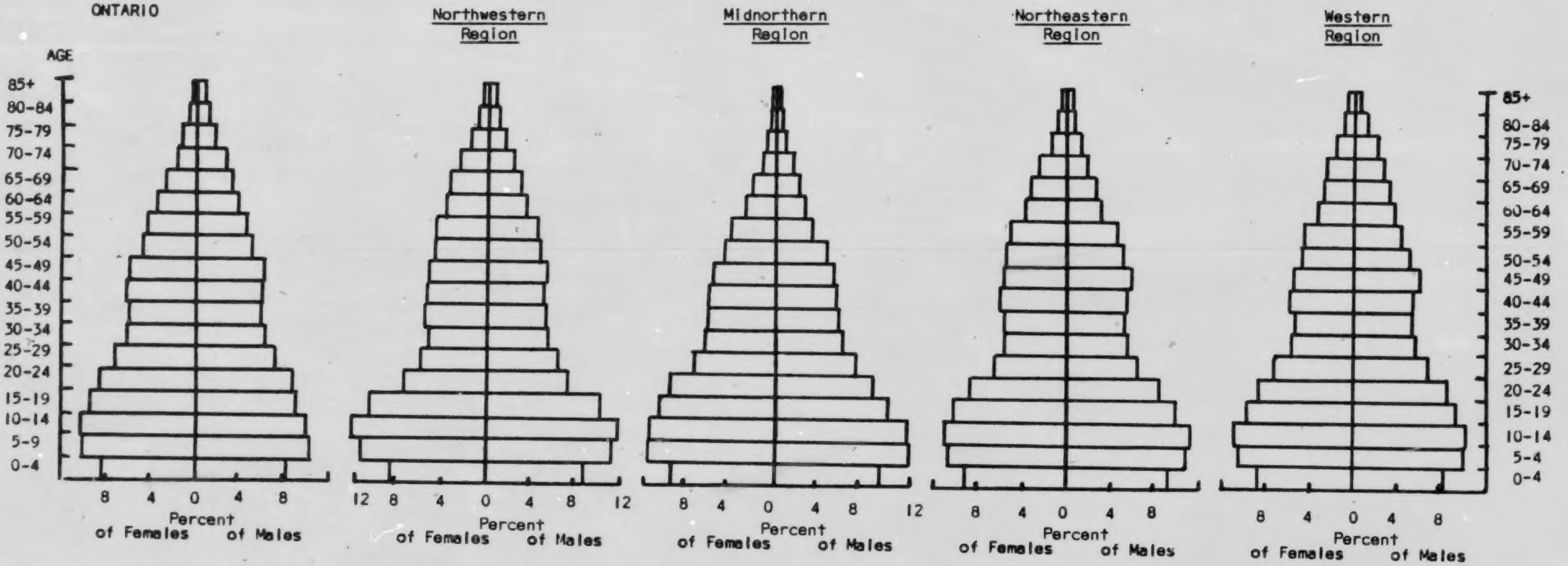
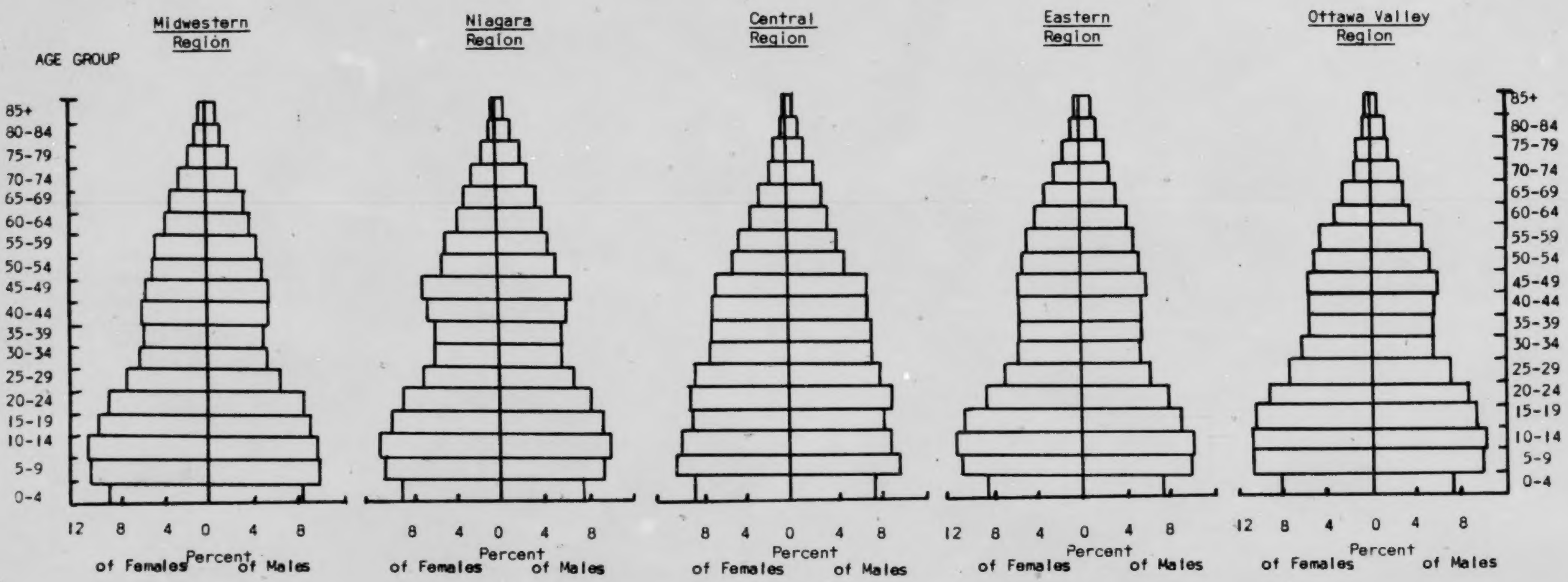
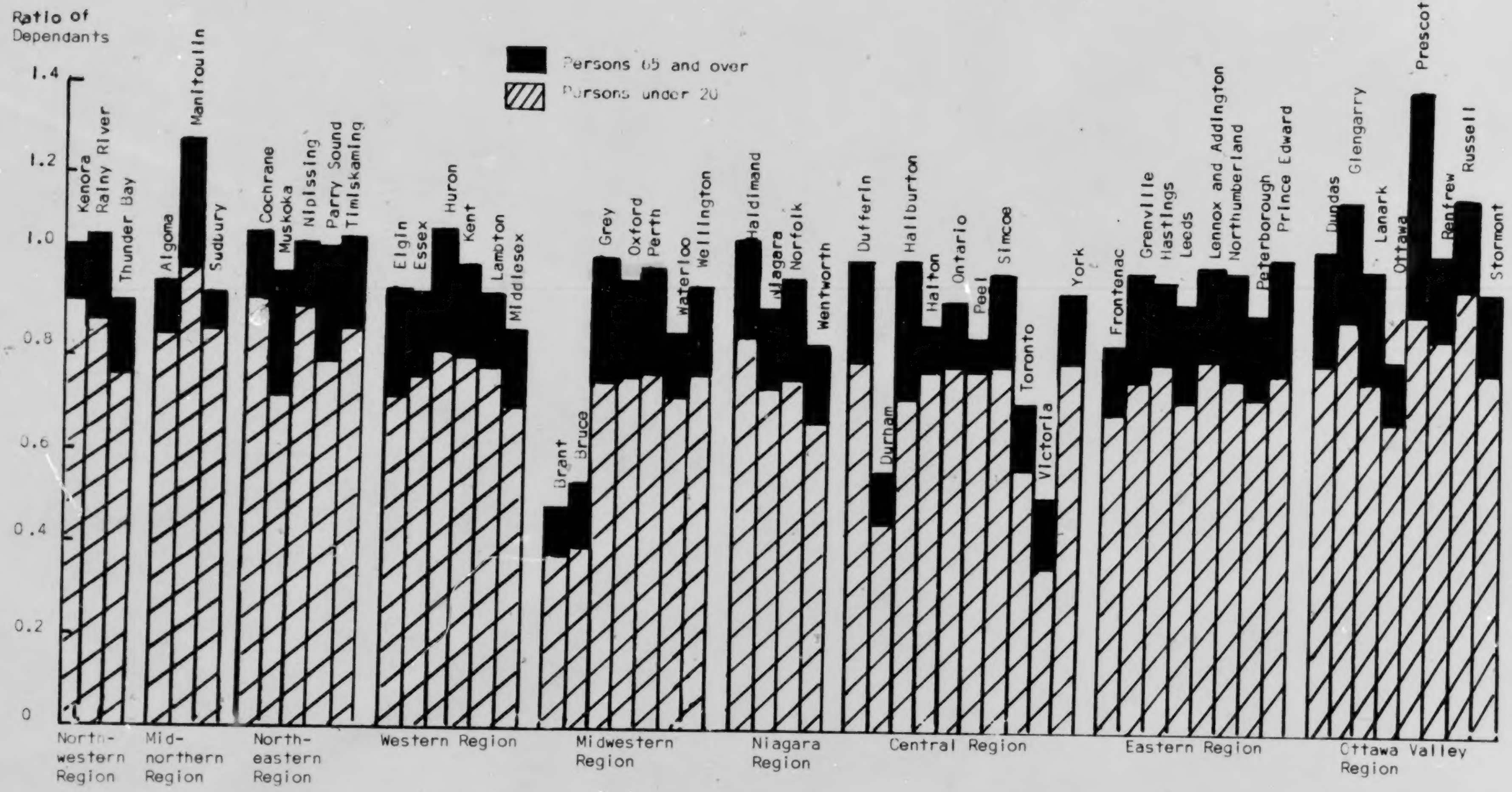


Figure 4B: (cont'd)



Source: Computed from Statistics Canada, 1971 Census of Canada, Population Age Groups, Bulletin 1.2-3 (Ottawa: Information Canada, 1973), Cat. 92-715, Table 9.

FIGURE 4C: RATIO OF YOUNG AND OLD POPULATION TO WORKING AGE PERSONS IN ONTARIO ACROSS EDUCATION REGIONS, 1971



Source: Computed from Statistics Canada, 1971 Census of Canada, Population Age Groups, Bulletin 1.2-3 (Ottawa: Information Canada, 1973), Cat. 92-715 Table 9.

the northern parts of the province, particularly the Northeastern Region. The lowest rate was in the Central Region.

Labour Force Participation

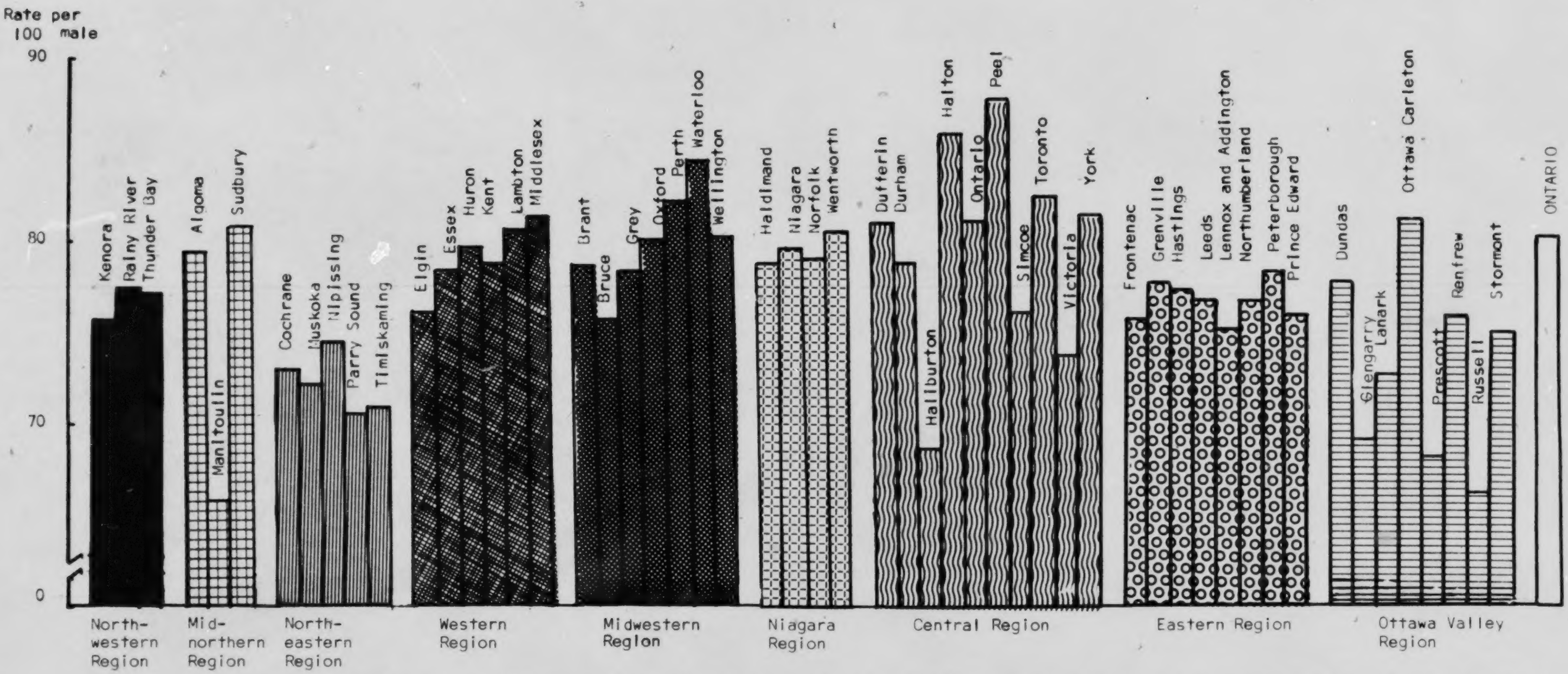
The rates of labour force participation for males and females in Ontario counties, districts, and regional areas are indicated by Figures 4D and 4E. (Note that the scale for females is different from that for males, because the overall rate of participation by females is much lower.) Obviously there is very little relationship between dependency and labour force participation. Prescott and Manitoulin, which had the highest dependency ratios, are almost at the lowest rung of labour force participation for either males or females. However, Victoria is the only one of the four counties with low dependency ratios which also has a relatively low male labour force participation rate. Even if we look at labour force participation in relation to the various age groups, as in Tables 4.4 and 4.5, or in relation to marital status, as in Tables 4.6 and 4.7, we find little or no correlation with dependency. Instead, we find evidence of a positive relationship of labour force participation to the rate of population growth and to the level of urbanization. This is suggested by labour force participation rates over 85 per 100 for males in Halton and Peel Counties, and rates from 47 to 50 per 100 females in the Municipality of Metropolitan Toronto, in Peel, Waterloo, and Middlesex Counties, and in the Regional Municipality of Ottawa-Carleton, the areas with the highest levels of urbanization and most rapid population growth throughout the province.

Ethnic Composition and Mother Tongue

Language, religion, and other ethnic-related characteristics all play a part in combining with national origins to determine the nature of education needs. Ethnic composition, religion, and mother tongue were selected as representative indicators of this particular group of influences.

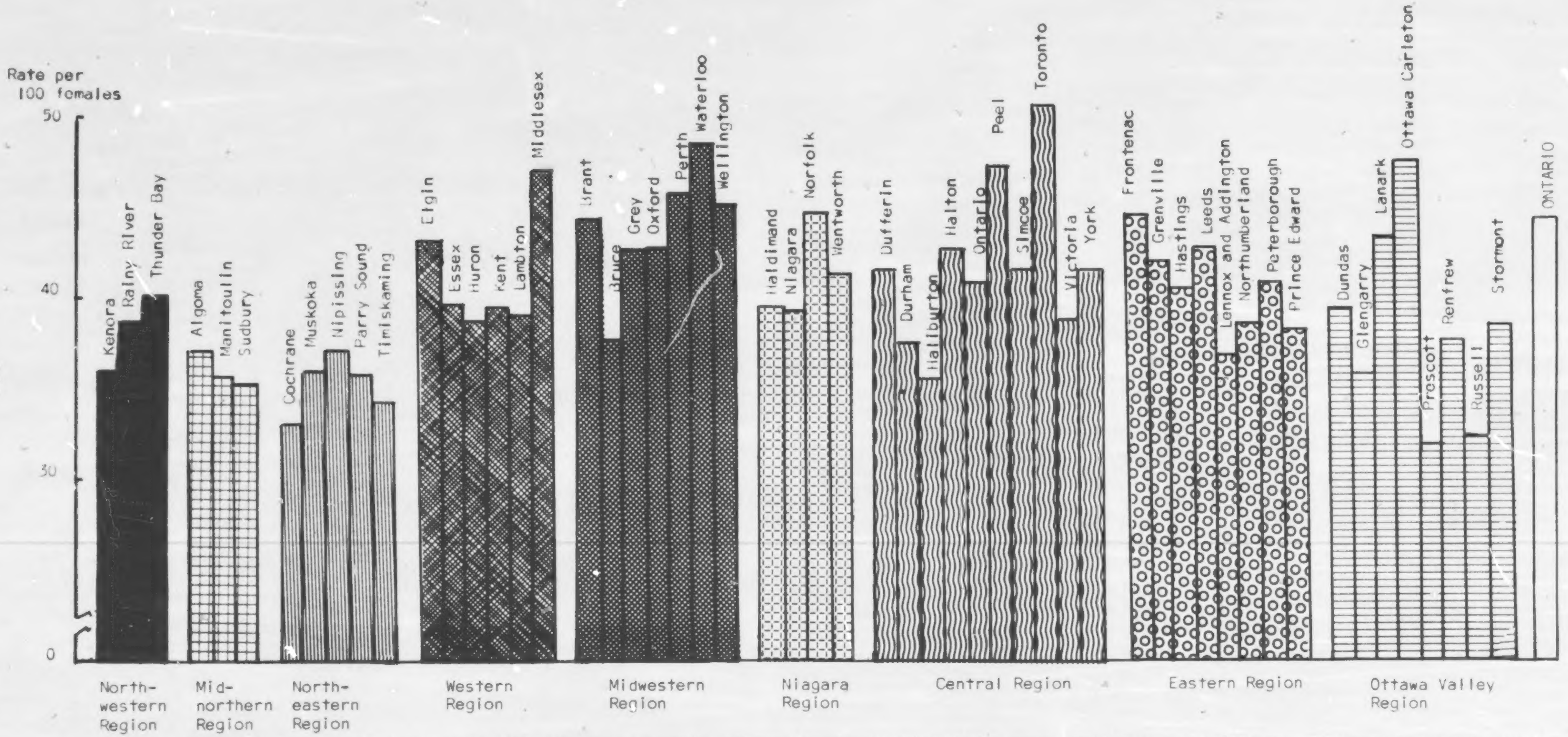
Table 4.8 summarizes the ethnic distribution across Ontario and education regions in 1971, and Table 4.9 gives the more detailed data respecting counties, districts, and regional areas. The changes in ethnic composition from 1961 to 1971 are summarized by Figure 4F.

FIGURE 4D: LABOUR FORCE PARTICIPATION OF MALES (15 YEARS AND OVER) IN EDUCATION REGIONS, ONTARIO 1971



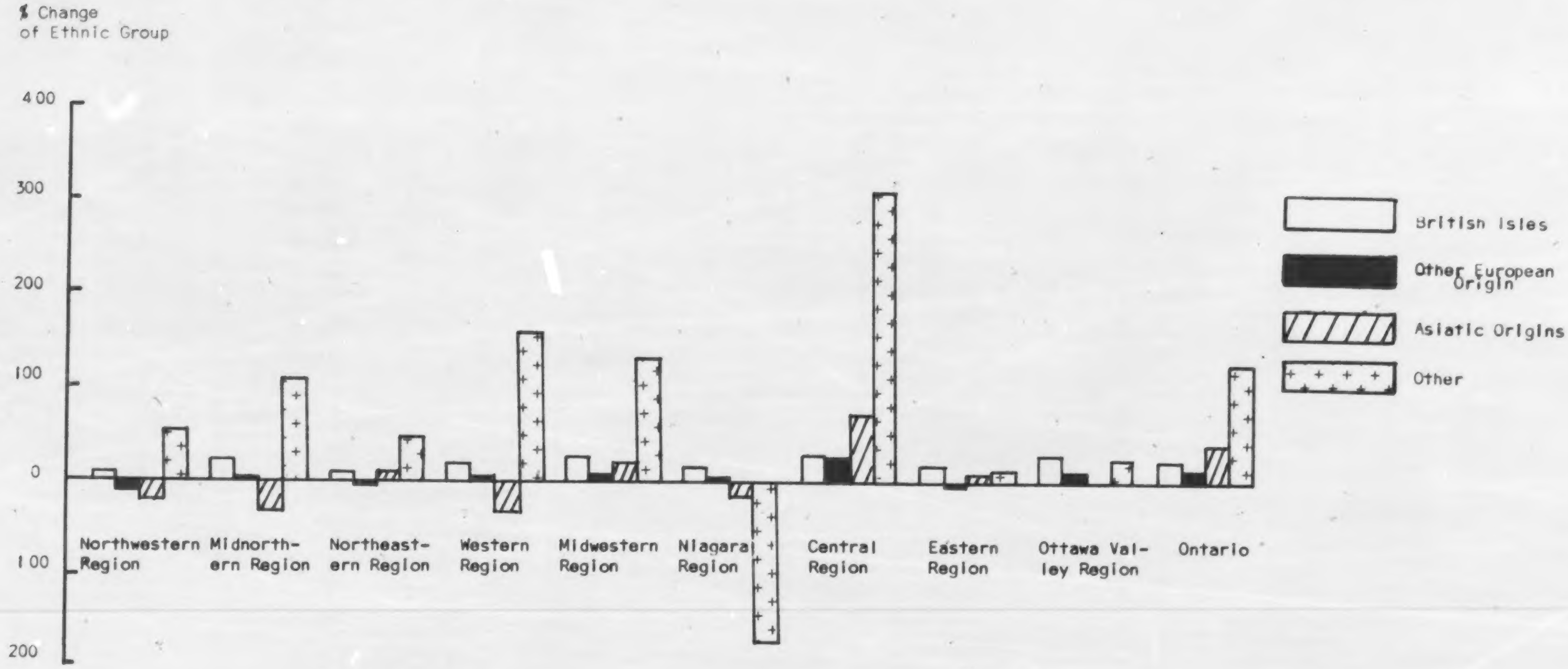
Source: Computed from Statistics Canada, 1971 Census of Canada, Labour Force and Individual Income, Bulletin 3.1-4 (Ottawa: Information Canada, 1974), Cat. 94-704, Table 10.

FIGURE 4E: LABOUR FORCE PARTICIPATION OF FEMALES (15 YEARS AND OVER) IN EDUCATION REGIONS, ONTARIO 1971



Source: Computed from Statistics Canada, 1971 Census of Canada, Labour Force and Individual Income, Bulletin 3.1-4 (Ottawa: Information Canada, 1974), Cat. 94-704, Table 10.

FIGURE 4F: CHANGE IN ETHNIC COMPOSITION OF EDUCATION REGIONS OF ONTARIO FROM 1961 TO 1971



Source: Dominion Bureau of Statistics, 1961 Census of Canada, Population Ethnic Groups, Bulletin 1.2-5 (Ottawa: Queen's Printer, 1962), Cat. 92-545, Table 37, and Statistics Canada, 1971 Census of Canada, Population Ethnic Groups, Bulletin 1.3-2 (Ottawa: Information Canada, 1973), Cat. 92-723, Table 4.

Across the province generally, by far the largest portion of the population in 1971 had origins in either the British Isles (59.4%) or in other European countries (33.2%). Highest proportion of population from the British Isles was found in the Eastern Region (80%). Population of other than British Isles origin was highest in the three northern regions; this included European origins in particular, which accounted for approximately 50% of the population in the northern parts of the province. Asiatic and Other Origins generally contributed 10% or less of the population, with highest proportions in the Central Region. The highest proportion of Native Indian population was in the Northwestern Region.

The most radical shifts which have occurred over the decade 1961-71 are in the "other" group of origins. This likely resulted from both a high rate of natural increase for Native Indian and Inuit groups and from immigration from the West Indies. However, as Table 4.8 indicates, a substantial part of this group falls within an "other and not stated" category, so that we can not really be certain of ethnic composition. There have been smaller increases in population from the British Isles and from other European origins but, since the base population for both these groups was already substantial in 1961, actual numbers involved were much larger than for other origins. Largest gains for these two origins and for the Asiatic origins group were in the Central Region.

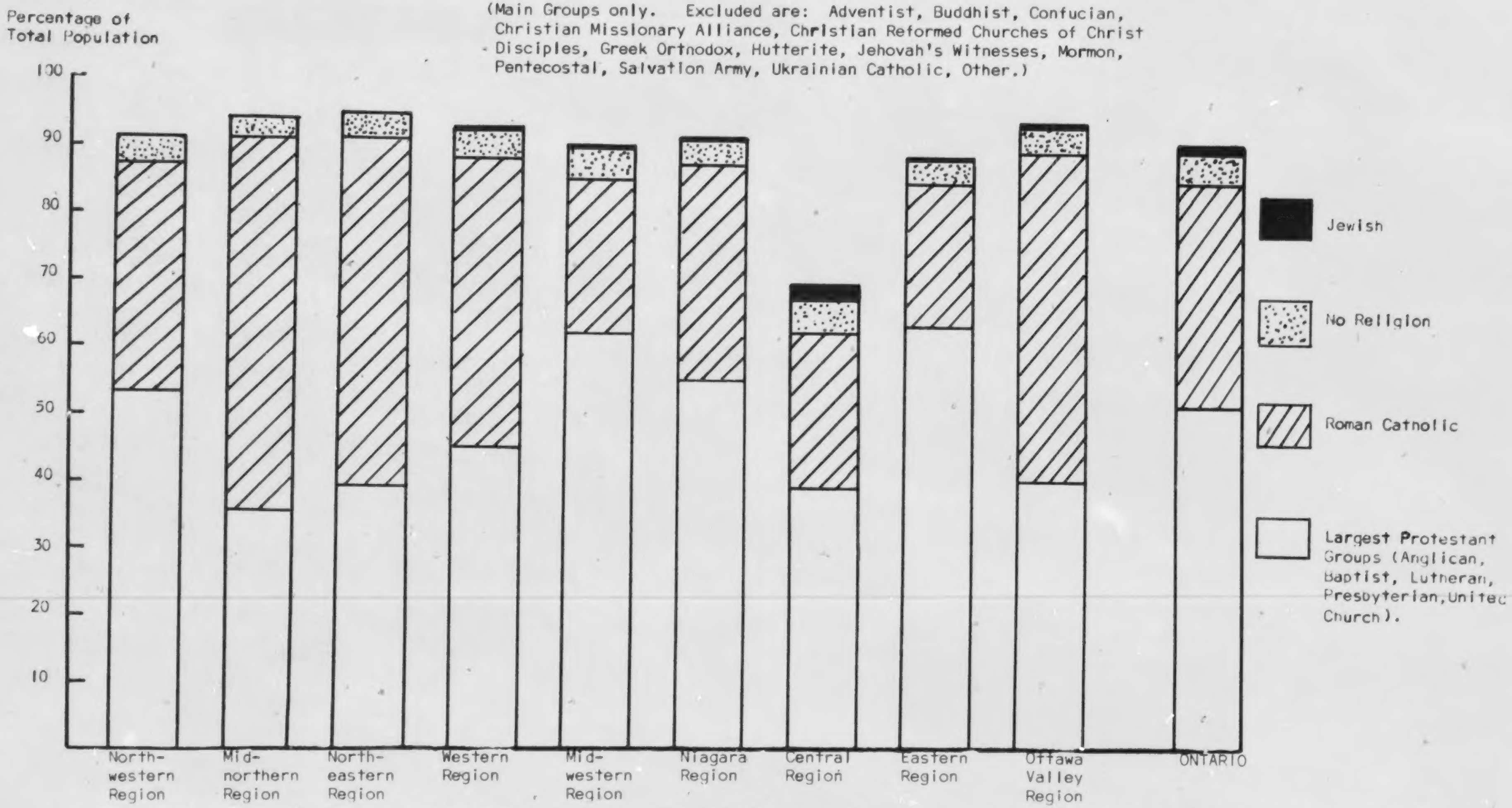
Figure 4G shows the religious composition of education regions across the province. The proportion of population which is Roman Catholic--highest in the Midnorthern and Northeastern Regions--is of particular interest because of the separate schools for Roman Catholics in Ontario.

Figure 4H indicates the percentage of population with mother tongue in Italian, German, French, and English. Other mother tongues, none of which were proportionately very large, would account for the distance between the tops of the bars in the figure and the 100% level. This gap was largest in the Northwestern Region where ethnic composition other than European was highest.

Along with religion, the distribution of French mother tongue throughout the province is an important feature, since schools exist in Ontario which are geared to meet these special needs and more may be built where the need arises. The areas in the Ottawa Valley Region had the largest proportion of population with French mother tongue, but Prince Edward County in the Eastern Region was also largely French-speaking.

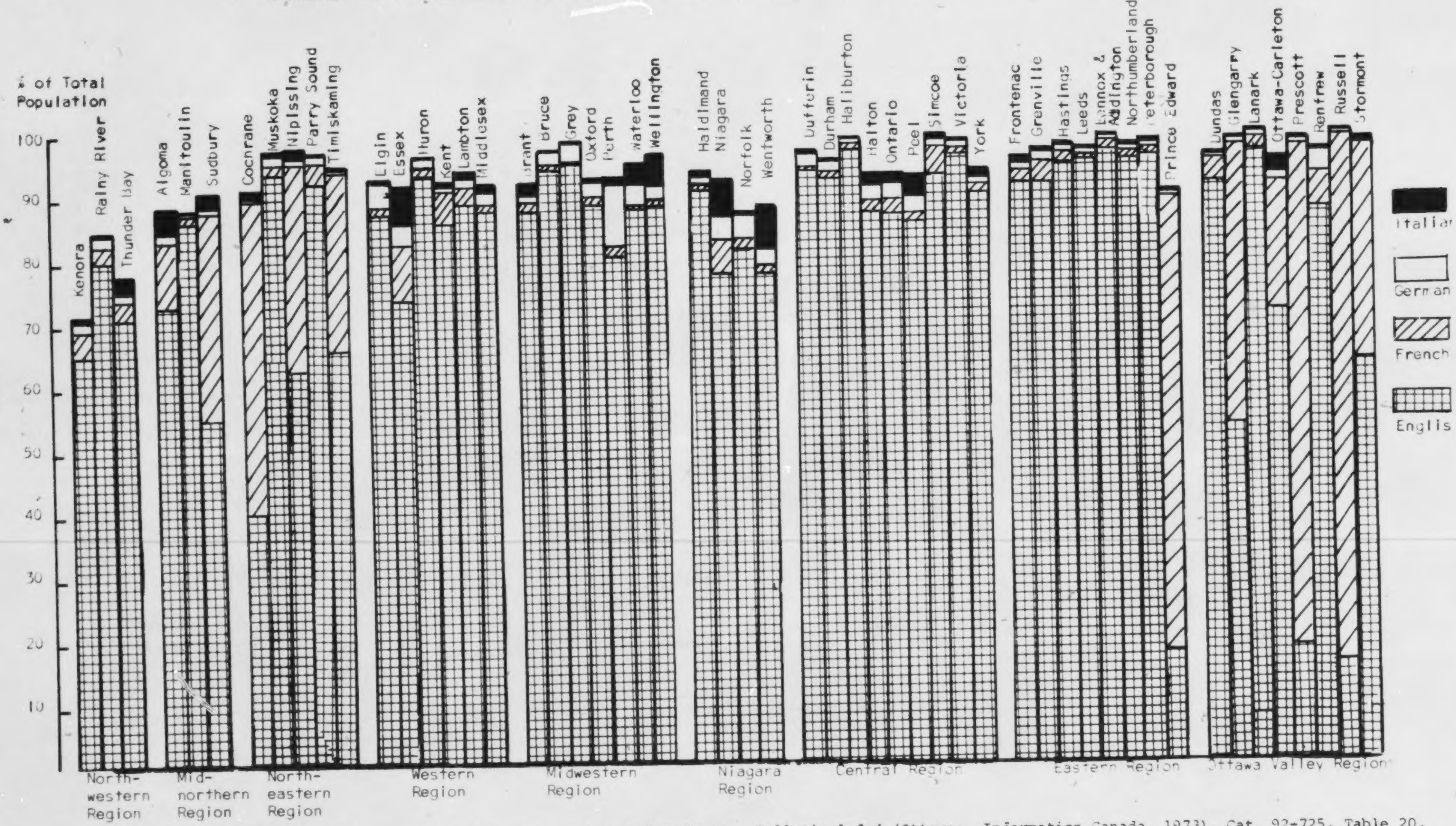
FIGURE 4G: RELIGIOUS COMPOSITION OF EDUCATION REGIONS OF ONTARIO, 1971

(Main Groups only. Excluded are: Adventist, Buddhist, Confucian, Christian Missionary Alliance, Christian Reformed Churches of Christ Disciples, Greek Orthodox, Hutterite, Jehovah's Witnesses, Mormon, Pentecostal, Salvation Army, Ukrainian Catholic, Other.)



Source: Statistics Canada, 1971 Census of Canada, Religious Denominations, Bulletin 1.3-3 (Ottawa: Information Canada, 1973), Cat. 92-724, Table 12.

FIGURE 4H: PERCENTAGE POPULATION BY SELECTED MOTHER TONGUE ACROSS ONTARIO, 1971



Source: Statistics Canada, 1971 Census of Canada, Population Mother Tongue, Bulletin 1.3-4 (Ottawa: Information Canada, 1973), Cat. 92-725, Table 20.

Elsewhere throughout the province, the largest concentrations were in Cochrane in the Northeastern Region and Sudbury in the Midnorthern Region.

Level of Educational Attainment

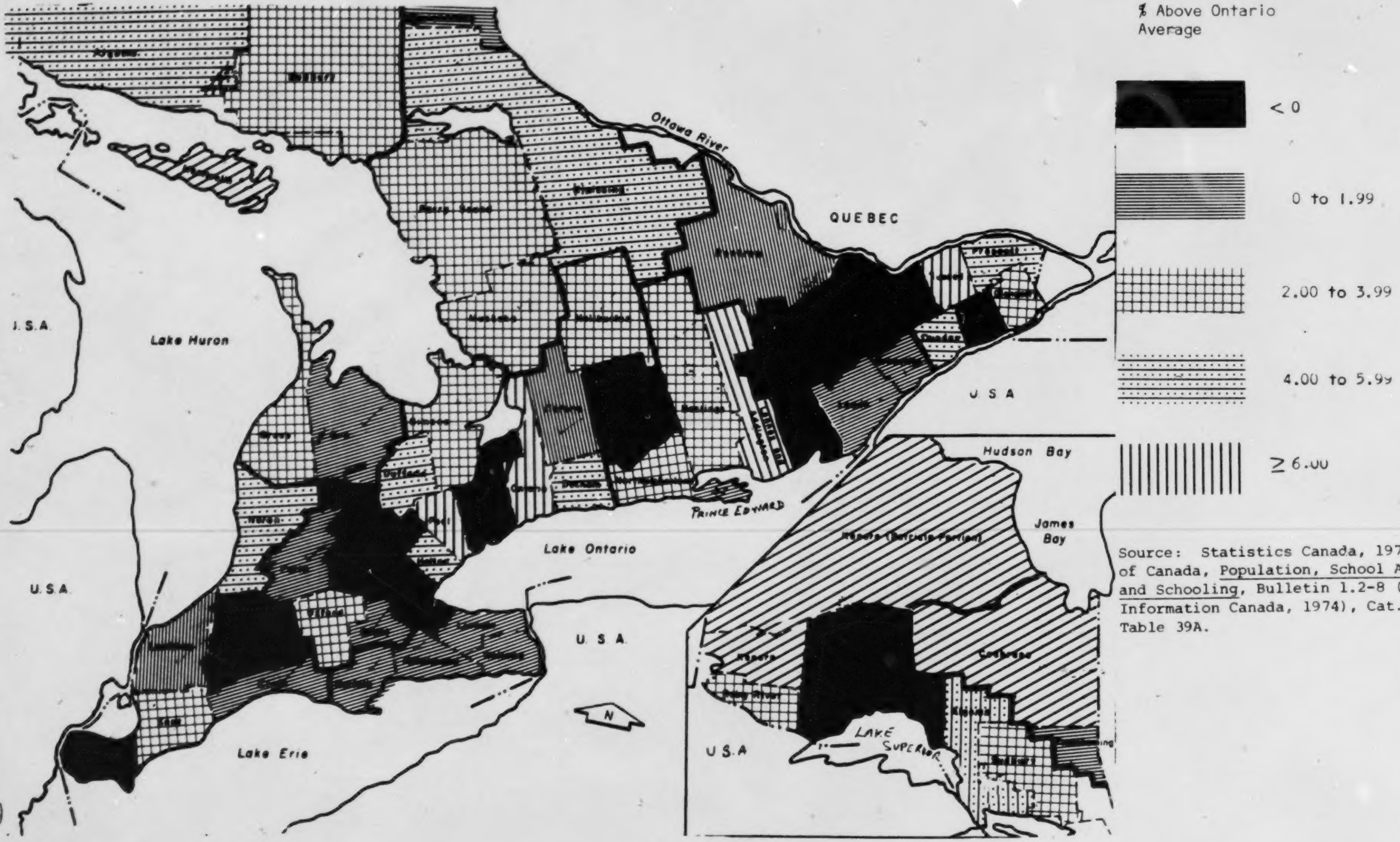
Figure 4I has been constructed to indicate which counties, districts, and regional areas were above or below the proportion (64.2%) of Ontario population aged 5 and over and not attending school, with educational attainment of grade 9 or less in 1971. Counties, districts, and regional areas designated as being 6% or more above the Ontario average probably are those most in need of educational improvement. In 1971, this included Kenora in the Northwestern Region, Manitoulin in the Midnorthern Region, Cochrane in the Northeastern Region, Peel and Ontario in the Central Region, Lennox and Addington in the Eastern Region, and Russell in the Ottawa Valley.

Smallest proportions of population with grade 9 or less were in Frontenac and Ottawa-Carleton (less than 6% of the population). However, it should be kept in mind that, while the level of educational attainment may indicate the deficiencies of the education system to some extent, it is also influenced by the area's age structure and by migration trends. Where the population is heavily weighted by older persons who received their education many years ago, when grade 9 was an acceptable level of accomplishment, or where there are immigrants from other countries whose educational standards may be different from those of Ontario, the level of educational attainment is likely to be a misleading indicator.

Conclusions

The implications for education of fertility, mortality, and migration are clearer than the implications of the population characteristics discussed in this chapter. The dynamics of fertility, mortality, and migration determine the number of population in each age group and, consequently, the uppermost limit for enrolment in schools and other educational institutions. Indicators of the sort considered in this chapter tend to define the type of education needed and to suggest where gaps exist in the current system of educational services.

FIGURE 4I: POPULATION WITH GRADE 9 EDUCATION OR LESS, 5 YEARS OF AGE AND OVER, NOT ATTENDING SCHOOL, BY COUNTY, DISTRICT AND REGIONAL AREA IN 1971


% Above Ontario Average
■ < 0
▤ 0 to 1.99
▦ 2.00 to 3.99
▤ 4.00 to 5.99
▥ ≥ 6.00
Ottawa River
QUEBEC
Lake Huron
Lake Ontario
Lake Erie
PRINCE EDWARD
U.S.A.
U S A
Hudson Bay
James Bay
LAKE SUPERIOR
N

Source: Statistics Canada, 1971 Census of Canada, Population, School Attendance and Schooling, Bulletin 1.2-8 (Ottawa: Information Canada, 1974), Cat. 92-720, Table 39A.

The level of educational attainment reflects the deficiencies in the education system to some extent, but the rate of population growth is probably more useful in suggesting where future educational needs are likely to be greatest, particularly when rapid population growth is related to high levels of natural increase which are sure to enlarge the population of school ages. Where high rates of growth are associated primarily with in-migration, particularly from French Canada or from overseas, there is likely to be a demand which is culturally based, such as the need for special instruction in language, in religion, and perhaps in special skills identified with particular national origins.

The ability to meet those demands will depend partly upon the ability of the local population to fund school boards through taxation, and upon the availability of persons in the necessary age groups who are trained to serve as teaching and administrative staff for the educational institutions across the province. The balance of dependent to working ages is one factor in the determination of regional ability to support needed education programs, although migration of skilled persons from other areas inside and outside the province, and financial support from provincial ministries--factors not considered in the present investigation--are likely to be at least as important.

We have made no attempt to incorporate into the population projections any assumptions about the sort of population characteristics considered in this chapter. However, that does not mean that such characteristics are not significant in determining educational requirements. The educational planner must predicate expectations of future enrolments upon a very wide range of considerations.

TABLE 4.0

RATE OF GROWTH OF ONTARIO POPULATION CENSUS INTERVALS, 1881-1971

Period	Population at Beginning of Period	Rate of Growth per Annum
1881-1891	1926922	0.932
1891-1901	2114321	0.320
1901-1911	2182947	1.475
1911-1921	2527292	1.502
1921-1931	2933662	1.580
1931-1941	3431683	0.992
1941-1951	3787655	1.956
1951-1961	4597542	3.094
1951-1956	4597542	3.288
1956-1961	5404933	2.902
1961-1971	6236092	2.201
1961-1966	6236092	2.223
1966-1971	6960870	2.179

Source: Computed from data from Censuses of Canada

TABLE 4.1

COMPONENTS OF POPULATION GROWTH IN ONTARIO
1901-1971
(thousands)

Period	Population Increase	Natural Increase*		Net gain through Migration		Population at the end of period (June 1)
		No.	% of Pop. Increase	No.	% of Pop. Increase	
1901						2,183
1901-11	344	212	61.6	132	38.4	2,527
1911-21	407	297	73.0	110	27.0	2,934
1921-31	498	344	69.1	154	30.9	3,432
1931-41	356	278	78.1	78	21.9	3,788
1941-51	810	505	62.4	305	37.7	4,598
1951-61	1,638	953	58.2	685	41.8	6,236
1961-71	1,467	887	60.5	580	39.5	7,703
Total	5,520	3476	63.0	2044	37.0	-

* Natural increase has been adjusted to the census year base in order to be consistent with the data on population.

Source: Province of Ontario, Population Statistics Ontario - 1969 (Toronto: Department of Treasury and Economics, Economic Analysis Branch, 1969), Table 6, and Province of Ontario, Vital Statistics 1971 (Toronto: Office of the Registrar General), p. 16.

TABLE 4.2

ANNUAL RATE OF GROWTH (LOGARITHMIC) AND YEARS TO DOUBLE POPULATION: COUNTIES, DISTRICTS AND REGIONAL AREAS IN EDUCATION REGIONS, BASED UPON 1966-71

County, District or Regional Area	Annual Rate of Growth (Percentage)	Years to Double Population
Northwestern Region		
Kenora[1]	- 0.285	*
Rainy River	- 0.051	*
Thunder Bay	0.238	291.74
Midnorthern Region		
Algoma	1.423	48.71
Manitoulin	0.719	96.39
Sudbury	2.581	26.86
Northeastern Region		
Cochrane	- 0.310	*
Muskoka[2]	2.855	24.28
Nipissing	1.400	49.51
Parry Sound	1.305	53.13
Timiskaming	- 0.286	*
Western Region		
Elgin	1.463	47.39
Essex	1.736	39.92
Huron	- 0.555	*
Kent	0.955	72.60
Lambton	1.093	63.42
Middlesex	2.458	28.20
Midwestern Region		
Brant	1.242	55.83
Bruce	1.903	36.43
Grey	1.183	58.61
Oxford	1.108	62.53
Perth	0.827	83.81
Waterloo	3.177	21.82
Wellington	2.846	24.35
Niagara Region		
Haldimand	1.695	40.90
Niagara[3]	1.334	51.97
Norfolk	1.346	51.48
Wentworth[4]	0.953	72.72
Central Region		
Dufferin	4.289	16.16
Durham	1.279	54.21
Haliburton	3.121	22.21
Halton[5]	4.522	15.33
Ontario	2.776	24.97
Peel	8.180	8.47
Simcoe	2.787	24.87
Toronto York } [6]	2.195	31.58
Victoria	2.042	33.95

Table 4.2 (cont'd)

County, District or Regional Area	Annual Rate of Growth (Percentage)	Years to Double Population
Eastern Region		
Frontenac	0.917	75.60
Grenville	0.742	93.37
Hastings	1.089	63.64
Leeds	0.389	177.99
Lennox & Addington	2.361	29.36
Northumberland	1.324	52.33
Peterborough	1.378	50.30
Prince Edward	- 0.636	*
Ottawa Valley Region		
Dundas	0.404	171.60
Glengarry	0.326	212.47
Lanark	0.502	138.02
Ottawa-Carleton[7]	2.634	26.31
Prescott	0.491	141.16
Renfrew	0.315	219.76
Russell[8]	1.813	38.22
Stormont	0.579	119.66
ONTARIO[9]	2.179	31.81

* Decline in population.

1. Includes Patricia Portion.

2. District of Muskoka formed into the District Municipality of Muskoka in 1971.

3. Lincoln and Welland Counties had become the Regional Municipality of Niagara by 1971.

4. Part of the population of Burlington, included in 1966, was excluded in 1971.

5. Part of the population of Burlington, included in 1971, was excluded in 1966.

6. Combines the Municipality of Metropolitan Toronto with the Regional Municipality of York in 1971, in order to be consistent with data for the County of York, which included Toronto in 1966.

7. Became a Regional Municipality in 1971, including Cumberland Township which was excluded in 1966.

8. Excludes Cumberland Township in 1971; includes it in 1966.

9. For full listing of Counties, Districts and Regional Areas, with their subdivisions in 1971, see Appendix.

Source: Computed from data on population in Statistics Canada, 1971 Census of Canada, Population Age Groups, Bulletin 1.2-3 (Ottawa: Information Canada, 1973), Cat. 92-715, Table 9; and Dominion Bureau of Statistics, 1966 Census of Canada, Population Age Groups, Vol. 1.1-10 (Ottawa: Queen's Printer, 1968), Cat. 92-610, Table 21.

TABLE 4.3

POPULATION DISTRIBUTION, SHOWING DEPENDANT AND LABOUR FORCE AGES AND DEPENDENCY RATIOS FOR EDUCATION REGIONS AND ONTARIO, 1971

County, District or Regional Area	Population in Dependent Ages		Total Dependent Ages	Labour Force 20-64
	Under 20	65 and over		
Northwestern Region				
Number	92560	17325	109885	114490
Ratio to Labour Force	0.81	0.15	0.96	1.00
Midnorthern Region				
Number	145285	16780	162065	168875
Ratio to Labour Force	0.86	0.10	0.96	1.00
Northeastern Region				
Number	121060	24120	145180	138185
Ratio to Labour Force	0.88	0.17	1.05	1.00
Western Region				
Number	356870	87775	444645	478570
Ratio to Labour Force	0.75	0.18	0.93	1.00
Midwestern Region				
Number	276020	70250	346270	370370
Ratio to Labour Force	0.74	0.19	0.93	1.00
Niagara Region				
Number	316420	75320	391740	444225
Ratio to Labour Force	0.71	0.17	0.88	1.00
Central Region				
Number	1145235	247545	1392780	1807840
Ratio to Labour Force	0.63	0.14	0.77	1.00
Eastern Region				
Number	177535	44915	222450	238040
Ratio to Labour Force	0.75	0.19	0.93	1.00
Ottawa Valley Region				
Number	290885	64315	355200	396145
Ratio to Labour Force	0.73	0.16	0.90	1.00
ONTARIO				
Number	2921870	648345	3570215	4157100
Ratio to Labour Force	0.70	0.16	0.86	1.00

Source: Computed from Statistics Canada, 1971 Census of Canada, Population Age Groups, Bulletin 1.2-3 (Ottawa: Information Canada, 1973), Cat. 92-715, Table 9.

TABLE 4.4

LABOUR FORCE* PARTICIPATION OF MALES BY SPECIFIED AGES FOR COUNTIES, DISTRICTS AND REGIONAL AREAS IN EDUCATION REGIONS IN ONTARIO, 1971

County, District or Regional Area	AGE													
	15-19		20-24		25-34		35-44		45-54		55-64		65+	
	No. of Participants	Rate per 100	No. of Participants	Rate per 100	No. of Participants	Rate per 100	No. of Participants	Rate per 100	No. of Participants	Rate per 100	No. of Participants	Rate per 100	No. of Participants	Rate per 100
Northwestern Region:	5495	46.9	8645	89.4	12900	93.9	12495	94.4	11530	92.5	8155	83.6	2000	22.0
Kenora[1]	1310	46.9	1995	87.3	3090	90.8	2775	91.0	2390	89.3	1680	81.0	395	23.2
Rainy River	825	54.1	965	90.7	1380	94.5	1345	96.4	1245	92.0	1040	86.2	275	24.3
Thunder Bay	3360	45.3	5685	89.9	8430	94.9	8375	95.2	7895	93.7	5435	84.0	1330	21.4
Midnorthern Region:	8260	46.6	14685	89.4	22160	95.1	19625	95.1	15710	93.0	9615	82.0	1695	20.8
Algoma	2995	46.5	4605	87.8	7790	96.1	7770	96.5	5925	92.8	3630	81.9	690	20.3
Manitoulin	290	45.8	255	76.0	465	90.1	500	91.3	455	85.8	350	71.5	125	19.0
Sudbury	4975	46.7	9825	90.6	13905	94.8	11355	94.4	9330	93.5	5635	82.9	880	21.4
Northeastern Region:	6685	43.5	9735	88.5	15355	92.3	14970	92.1	12325	88.4	9185	77.1	2385	19.7
Cochrane	2285	42.8	3600	88.0	5570	91.7	5065	91.3	3970	85.9	2820	78.6	615	17.5
Muskoka[2]	795	51.7	1005	87.7	1575	92.1	1650	93.8	1515	90.7	1295	77.3	445	22.5
Nipissing	1720	40.6	2600	89.7	4385	92.6	4560	92.8	3450	90.3	2090	75.7	485	19.2
Parry Sound	765	47.7	935	90.5	1495	94.5	1445	92.6	1465	90.8	1270	76.9	370	18.9
Timiskaming	1120	41.9	1595	87.6	2330	92.1	2250	91.5	1925	87.1	1710	76.0	470	22.0
Western Region:	23740	47.3	35935	82.0	57145	85.8	51360	85.8	46260	83.1	31425	75.1	9805	22.6
Elgin	1775	58.1	2480	90.6	4040	94.2	3245	92.6	3170	87.6	2530	81.1	750	22.7
Essex	7440	50.4	12145	90.3	18870	95.9	17200	96.4	15125	94.7	9785	82.7	2915	22.4
Huron	1810	66.6	1950	95.8	2790	97.2	2620	95.4	2600	95.4	2250	83.9	920	30.9
Kent	2730	53.5	3730	89.5	5780	95.3	5385	97.1	4900	94.8	3615	84.6	1410	30.7
Lambton	2980	50.2	4400	91.8	6825	96.5	6815	97.6	6070	95.6	4065	86.4	1145	27.1
Middlesex	7005	54.6	11230	91.5	18840	96.0	16095	96.9	14395	93.8	9180	85.4	2665	26.5

Table 4.4 (cont'd)

County, District or Regional Area	AGE													
	15-19		20-24		25-34		35-44		45-54		55-64		65+	
	No. of Participants	Rate per 100	No. of Participants	Rate per 100	No. of Participants	Rate per 100	No. of Participants	Rate per 100	No. of Participants	Rate per 100	No. of Participants	Rate per 100	No. of Participants	Rate per 100
Midwestern Region:	20940	59.3	28455	90.9	44705	95.7	39710	96.5	35715	95.0	25850	86.3	9455	36.6
Brant	2410	50.9	3825	90.8	5645	96.2	5280	96.0	5110	94.4	3690	83.1	945	23.7
Bruce	1555	64.3	1575	90.4	2450	95.4	2335	94.8	2240	93.1	1965	80.4	865	27.8
Grey	2080	62.1	2245	92.3	3325	96.0	3480	96.4	3430	94.0	2825	83.1	1290	32.6
Oxford	2320	58.5	3040	92.6	4680	96.2	4285	94.9	4010	91.9	3170	86.2	1180	32.2
Perth	2160	66.2	2305	94.3	3585	97.4	3325	96.5	3285	96.2	2510	88.4	1065	34.4
Waterloo	7190	59.8	11265	91.8	18340	95.7	14940	97.7	12430	96.3	7895	89.3	2670	33.4
Wellington	3225	57.7	4200	85.5	6680	94.3	6065	96.3	5210	95.6	3795	88.0	1440	31.8
Niagara Region:	19910	49.0	31780	90.9	50535	96.1	48640	96.4	46115	95.0	30225	86.4	7690	23.8
Haldimand	1055	56.2	1175	94.5	1855	97.2	1735	96.7	1555	95.2	1240	83.9	470	29.5
Niagara[3]	8360	48.1	12510	90.2	20410	96.5	20090	96.7	19315	95.4	12470	87.3	3140	23.6
Norfolk	1385	49.7	1995	92.2	3100	96.2	2945	95.3	2590	92.0	2050	82.6	685	24.7
Wentworth	9110	48.9	16100	91.1	25170	95.6	23870	96.2	22655	95.0	14465	86.3	3395	23.2
Central Region:	66105	48.7	124760	89.3	228390	95.8	209200	96.5	168620	94.9	106005	86.5	28500	28.3
Dufferin	605	60.5	690	94.7	1315	98.6	1175	97.5	1095	93.3	765	81.6	350	34.3
Durham	1260	51.9	1500	84.0	2875	96.0	2705	96.9	2440	95.3	1720	84.2	545	27.8
Haliburton	235	52.2	255	87.2	435	95.4	410	94.3	465	93.1	355	68.1	140	19.8
Halton	4450	50.3	6340	91.3	13475	98.1	13775	98.4	10430	97.6	5465	91.3	1270	30.6
Ontario	4375	47.8	6525	90.2	13715	97.3	12935	97.2	9725	94.7	5360	81.7	1365	22.8
Peel	5565	50.8	9495	92.7	21270	98.3	19070	98.3	12700	97.5	6215	90.8	1345	31.9
Simcoe	4660	50.6	6170	86.0	9925	93.3	9170	94.5	8190	92.6	5955	81.0	2035	26.6
Toronto[4]	39745	47.3	87470	88.8	153690	95.2	136805	96.1	113250	94.7	73605	87.2	19520	29.0
Victoria	995	61.7	1090	90.5	1775	96.9	1680	94.9	1560	88.1	1410	77.9	575	24.9
York[5]	4215	51.6	5225	91.7	9915	96.9	11475	96.9	8765	94.5	5155	84.7	1355	25.2

Table 4.4 (cont'd)

County, District or Regional Area	AGE													
	15-19		20-24		25-34		35-44		45-54		55-64		65+	
	No. of Participants	Rate per 100	No. of Participants	Rate per 100	No. of Participants	Rate per 100	No. of Participants	Rate per 100	No. of Participants	Rate per 100	No. of Participants	Rate per 100	No. of Participants	Rate per 100
Eastern Region:	11570	49.7	16670	88.0	26710	92.7	24955	94.1	23035	92.2	16615	81.9	5075	26.1
Frontenac	2195	45.9	4145	84.1	6590	86.5	5560	90.8	4900	90.3	3145	80.7	880	25.8
Grenville	665	53.5	815	90.7	1410	96.2	1290	96.2	1185	94.8	970	82.6	345	28.2
Hastings	2525	47.8	3490	90.5	5475	95.6	5740	95.6	4995	92.7	3465	82.5	1005	24.7
Leeds	1260	51.2	1670	90.5	2865	94.3	2675	94.3	2420	91.1	2035	82.0	625	26.8
Lennox & Addington	745	52.1	960	85.6	1790	89.4	1435	90.2	1295	87.2	1015	83.2	375	29.0
Northumberland	1370	55.6	1580	85.7	2530	95.3	2545	95.8	2460	92.9	1825	82.4	730	29.4
Peterborough	2250	49.1	3340	90.0	4990	96.0	4695	96.2	4675	95.2	3335	82.6	825	23.9
Prince Edward	560	54.6	670	90.8	1060	96.2	1015	94.5	1105	91.4	825	78.3	290	25.6
Ottawa Valley Region:	17875	47.3	29520	87.9	47145	94.1	41285	95.0	37405	92.3	23555	82.5	5985	24.2
Dundas	505	58.0	620	89.5	980	94.6	810	94.5	875	90.4	700	84.3	340	35.6
Glengarry	575	55.9	555	84.8	860	90.5	795	91.2	835	84.4	655	70.2	250	22.5
Lanark	1155	49.2	1440	80.9	2155	86.3	2040	94.6	1970	90.8	1705	84.5	575	25.5
Ottawa-Carleton[6]	10540	46.5	19905	88.7	32165	95.1	27655	96.1	24825	94.3	14355	85.1	3080	24.9
Prescott	720	42.8	820	81.4	1460	88.6	1250	88.6	1140	83.0	845	72.6	275	22.4
Renfrew	2380	48.0	3300	88.7	5250	95.3	5015	94.3	4330	91.1	2810	79.4	845	23.3
Russell	480	49.8	545	79.5	945	89.5	630	80.5	540	71.4	420	67.5	135	19.2
Stormont	1520	40.0	2335	89.4	3330	93.7	3090	93.6	2890	91.0	2065	80.9	485	19.6

* Labour force refers to non-inmates 15 years and over who, in the week prior to enumeration, worked for pay or profit, helped without pay in a family business or farm, looked for work, were on temporary lay-off or had jobs from which they were temporarily absent because of illness, vacation, strike, etc. Persons doing housework in their own home, or volunteer work only, are excluded from the labour force.

1. Includes Patricia Portion.
2. The District Municipality of Muskoka, formerly the District of Muskoka.
3. The Regional Municipality of Niagara, formerly Lincoln and Welland Counties.
4. The Municipality of Metropolitan Toronto, formerly part of York County.
5. The Regional Municipality of York, formerly part of York County.
6. The Regional Municipality of Ottawa-Carleton in 1971, formerly Carleton County and Cumberland Township in Russell County.

Source: Computed from Statistics Canada, 1971 Census of Canada, Labour Force and Ondividual Income, Bulletin 3.1-4 (Ottawa: Information Canada, 1974), Cat. 94-704, Table 10.

TABLE 4.5

LABOUR FORCE* PARTICIPATION OF FEMALES BY SPECIFIED AGES FOR COUNTIES, DISTRICTS AND REGIONAL AREAS IN EDUCATION REGIONS IN ONTARIO, 1971

County, District or Regional Area	AGE													
	15-19		20-24		25-34		35-44		45-54		55-64		65+	
	No. of Participants	Rate per 100	No. of Participants	Rate per 100	No. of Participants	Rate per 100	No. of Participants	Rate per 100	No. of Participants	Rate per 100	No. of Participants	Rate per 100	No. of Participants	Rate per 100
Northwestern Region:	4070	37.1	4845	53.7	5305	40.1	5560	46.1	5785	46.9	3055	34.5	590	7.1
Kenora[1]	815	31.7	935	44.8	1165	35.5	1125	42.1	1165	45.0	655	35.6	130	8.4
Rainy River	495	37.9	440	48.5	575	41.8	645	49.6	655	46.2	355	35.0	105	9.9
Thunder Bay	2760	38.9	3470	57.7	3565	41.6	3790	46.8	3965	47.6	2045	34.2	355	6.2
Midnorthern Region:	5850	34.7	7365	52.3	7770	36.6	7190	39.0	6160	38.8	3120	30.4	565	6.6
Algoma	2135	35.6	2730	55.3	3105	39.5	2840	40.2	2380	40.1	1305	31.8	205	5.5
Manitoulin	150	29.9	145	41.6	205	42.3	240	45.9	225	43.5	215	41.1	95	13.9
Sudbury	3565	34.5	4490	51.0	4460	34.6	4110	37.8	3555	37.7	1600	28.4	265	6.2
Northeastern Region:	4600	31.8	5535	52.8	6545	39.1	6320	41.9	5990	41.3	3435	29.6	860	7.2
Cochrane	1415	28.6	2000	51.5	2045	35.4	2005	39.4	1595	36.1	790	24.1	180	6.3
Muskoka[2]	525	34.4	545	53.0	705	41.1	790	45.9	890	47.6	615	33.7	205	9.3
Nipissing	1375	33.9	1610	54.5	2110	41.6	1905	42.7	1645	42.1	880	31.0	210	7.2
Parry Sound	560	38.3	480	54.2	685	42.2	655	44.1	785	44.0	535	33.6	105	5.5
Timiskaming	725	29.3	900	52.5	1000	39.1	965	41.4	1075	42.7	615	29.2	160	7.7
Western Region:	17490	40.2	25295	63.6	27960	47.9	25210	48.9	25685	49.7	14865	38.1	4095	8.3
Elgin	1260	43.1	1585	61.1	2105	52.8	1840	54.2	2140	56.7	1235	37.6	355	7.9
Essex	5730	39.1	8125	61.1	8485	44.8	7840	45.9	8020	47.0	4200	33.4	1290	7.9
Huron	945	39.5	950	57.0	1310	47.5	1285	48.6	1435	50.2	1005	38.3	265	7.3
Kent	1945	38.7	2225	57.4	2710	44.7	2550	47.4	2625	47.3	1685	37.6	490	8.6
Lambton	2065	35.9	2590	59.6	3070	43.7	3005	45.0	2915	45.0	1570	35.1	415	7.9
Middlesex	5545	43.5	9820	70.1	10280	52.2	8690	52.9	8550	53.7	5170	44.6	1280	8.9

Table 4.5 (cont'd)

County, District or Regional Area	AGE 15-19		20-24		25-34		35-44		45-54		55-64		65+	
	No. of Participants	Rate per 100	No. of Participants	Rate per 100	No. of Participants	Rate per 100	No. of Participants	Rate per 100	No. of Participants	Rate per 100	No. of Participants	Rate per 100	No. of Participants	Rate per 100
Midwestern Region:	15010	45.1	20515	67.2	22225	50.9	21585	54.4	20775	53.6	12725	41.0	3680	9.2
Brant	1895	41.2	2635	67.7	2915	51.2	2960	55.2	3085	54.4	1730	38.2	415	7.5
Bruce	760	34.8	765	55.2	1065	44.8	1180	52.3	1300	51.7	895	37.7	280	8.1
Grey	1285	42.3	1450	63.9	1675	49.8	2095	58.1	2000	54.2	1385	39.6	475	10.0
Oxford	1575	41.5	2035	65.1	2240	49.2	2390	54.4	2240	50.3	1480	40.4	455	9.2
Perth	1370	44.9	1660	70.5	1880	54.1	1865	55.5	1945	56.1	1255	43.3	450	10.9
Waterloo	5940	51.1	8860	69.3	9085	52.0	7890	53.6	7140	53.7	4110	42.5	1055	9.4
Wellington	2185	43.8	3110	66.1	3365	49.8	3205	53.8	3065	54.0	1870	42.6	550	9.1
Niagara Region:	15040	38.3	21600	63.4	23730	45.6	24035	47.7	23085	46.6	12925	35.4	3285	7.7
Haldimand	565	36.0	595	55.2	795	42.9	905	52.2	825	50.0	600	41.5	120	6.7
Niagara[3]	6545	39.0	8190	61.5	9150	42.6	9605	45.8	9345	44.8	5150	34.6	1215	7.1
Norfolk	1055	39.9	1195	62.6	1755	56.5	1845	60.2	1580	53.5	945	37.4	290	9.2
Wentworth	6875	37.5	11620	65.4	12030	47.0	11680	47.4	11335	47.0	6230	35.2	1660	8.0
Central Region:	57875	43.3	104165	70.7	128430	54.6	109205	53.3	96865	54.3	53390	41.6	13060	8.9
Dufferin	355	37.6	400	58.7	645	48.1	625	55.0	600	55.1	305	34.5	100	8.1
Durham	900	38.9	920	56.7	1160	40.3	1325	48.4	1075	42.7	605	33.6	170	6.8
Haliburton	135	33.1	150	53.5	205	50.7	205	44.9	240	43.4	205	34.4	40	6.4
Halton	3435	40.9	4655	67.7	6105	43.3	6005	45.0	4875	47.5	1870	33.2	460	8.0
Ontario	3105	35.8	4595	63.2	6280	44.2	6000	47.9	4635	46.7	2180	33.2	495	6.4
Peel	4740	44.5	7655	68.7	10500	48.3	8670	49.5	6080	50.8	2440	37.7	415	6.9
Simcoe	3390	41.0	3965	60.6	4765	46.5	4730	51.4	4795	51.7	2780	36.7	660	7.0
Toronto[4]	30835	44.8	77750	72.9	93315	59.1	75325	55.7	69110	56.8	40235	44.2	9940	9.6
Victoria	570	35.8	700	64.3	785	44.5	945	55.8	1015	51.2	660	33.8	270	10.1
York[5]	3210	42.5	3375	65.0	4670	43.2	5375	47.6	4440	48.9	2110	36.1	510	7.0

Table 4.5 (cont'd)

County, District or Regional Area	AGE 15-19		20-24		25-34		35-44		45-54		55-64		65+	
	No. of Participants	Rate per 100	No. of Participants	Rate per 100	No. of Participants	Rate per 100	No. of Participants	Rate per 100	No. of Participants	Rate per 100	No. of Participants	Rate per 100	No. of Participants	Rate per 100
Eastern Region:	8275	37.6	11885	63.8	13020	47.6	12750	49.4	12895	49.1	7780	37.4	2060	8.1
Frontenac	1960	40.6	3535	67.5	3310	48.7	2870	49.6	2810	50.7	1680	41.5	420	8.7
Grenville	335	30.7	585	68.4	755	53.9	675	51.3	700	52.7	420	37.1	150	9.7
Hastings	1850	37.3	2305	61.5	2670	47.0	2795	47.7	2695	47.5	1530	36.2	390	7.7
Leeds	900	39.0	1190	63.3	1460	49.2	1465	53.6	1565	53.9	1050	40.4	270	8.5
Lennox & Addington	440	33.4	475	53.4	740	42.0	720	48.2	600	42.9	425	36.1	115	7.8
Northumberland	740	34.3	1000	58.4	1180	45.4	1315	50.9	1390	49.4	840	35.4	245	8.0
Peterborough	1655	38.6	2445	66.0	2420	47.6	2355	47.7	2585	48.1	1420	34.1	380	7.9
Prince Edward	395	37.9	350	58.3	485	46.3	555	51.3	550	44.7	415	40.0	90	6.5
Ottawa Valley Region:	14080	38.6	23205	68.9	24030	49.1	21105	48.6	21520	50.4	12655	40.8	3215	9.0
Dundas	305	36.9	320	54.1	455	48.3	435	48.7	475	52.6	365	43.0	110	9.4
Glengarry	330	33.8	365	58.2	395	45.5	395	46.6	420	42.9	295	35.7	55	4.9
Lanark	785	36.6	1020	59.0	1150	51.8	1215	59.2	1355	57.7	955	46.2	240	8.0
Ottawa-Carleton[6]	9500	42.7	17225	74.4	17065	51.0	14230	49.5	14870	52.7	8625	44.7	2025	9.7
Prescott	400	27.6	500	54.9	655	40.3	580	39.1	495	33.9	270	23.4	110	8.3
Renfrew	1495	32.1	1835	58.8	2240	42.1	2325	44.7	2165	45.9	1155	33.4	375	8.7
Russell	265	31.2	325	57.3	365	36.7	340	43.4	245	33.9	135	23.2	30	4.1
Stormont	1000	30.1	1615	64.4	1705	48.2	1585	45.9	1495	44.6	855	31.1	270	8.5

* Labour force refers to non-inmates 15 years and over who, in the week prior to enumeration, worked for pay or profit, helped without pay in a family business or farm, looked for work, were on temporary lay-off or had jobs from which they were temporarily absent because of illness, vacation, strike, etc. Persons doing housework in their own home, or volunteer work only, are excluded from the labour force. Also excluded are female farm workers who indicated that they helped without pay in a family farm or business for less than 20 hours.

1. Includes Patricia Portion.
2. The District Municipality of Muskoka, formerly the District of Muskoka.
3. The Regional Municipality of Niagara, formerly Lincoln and Welland Counties.
4. The Municipality of Metropolitan Toronto, formerly part of York County.
5. The Regional Municipality of York, formerly part of York County.
6. The Regional Municipality of Ottawa-Carleton in 1971, formerly Carleton County and Cumberland Township in Russell County.

Source: Computed from Statistics Canada, 1971 Census of Canada, Labour Force and Individual Income, Bulletin 3.1-4 (Ottawa: Information Canada, 1974), Cat. 94-704, Table 10.

TABLE 4.6

MALE LABOUR FORCE* PARTICIPATION BY MARITAL STATUS FOR EDUCATION REGIONS IN ONTARIO, 1971

County, District or Regional Area	Marital Status of Male Participants in Labour Force Aged 15 Years and Over							
	Total		Single		Married (Inc. Separated)		Widowed	
	Number in Labour Force	Participation Rate per 100	Number in Labour Force	Participation Rate per 100	Number in Labour Force	Participation Rate per 100	Number in Labour Force	Participation Rate per 100
Northwestern Region:	61230	76.8	16025	62.5	43840	85.9	765	33.4
Kenora[1]	13640	75.8	3550	62.7	9795	83.8	155	32.6
Rainy River	7080	77.4	1905	65.4	5030	85.7	70	25.4
Thunder Bay	40510	77.1	10570	62.0	29015	86.8	540	35.6
Midnorthern Region:	91760	79.9	24070	65.3	65750	88.5	1015	39.7
Algoma	33410	79.4	8375	64.1	24145	88.4	470	39.7
Manitoulin	2445	65.8	740	57.1	1625	72.8	70	40.5
Sudbury	55905	80.9	14955	66.5	39980	89.4	475	39.1
Northeastern Region:	70660	72.7	17790	58.1	51480	81.7	880	30.4
Cochrane	23925	73.0	6405	58.9	17020	82.5	360	34.3
Muskoka[2]	8295	72.1	1895	60.9	6205	78.5	120	30.1
Nipissing	19290	74.5	4585	56.3	14385	84.6	180	31.9
Parry Sound	7755	70.5	2075	61.5	5525	77.2	90	24.3
Timiskaming	11395	70.9	2830	55.5	8345	80.8	130	26.1
Western Region:	255665	79.5	60260	66.9	188880	86.7	3310	34.7
Elgin	17985	76.1	4235	63.7	13300	83.6	235	30.8
Essex	83480	78.4	19905	66.6	61225	85.2	11001	33.8
Huron	14940	79.7	4090	72.8	10595	84.9	175	31.1
Kent	27550	78.9	6335	64.4	20530	86.8	405	37.0
Lambton	32290	80.6	7380	65.8	24035	88.3	445	39.8
Middlesex	79420	81.4	18315	68.3	59195	88.7	950	34.5

Table 4.6 (cont'd)

County, District or Regional Area	Marital Status of Male Participants in Labour Force Aged 15 Years and Over							
	Total		Single		Married (Inc. Separated)		Widowed	
	Number in Labour Force	Participation Rate per 100	Number in Labour Force	Participation Rate per 100	Number in Labour Force	Participation Rate per 100	Number in Labour Force	Participation Rate per 100
Midwestern Region:	204830	81.2	51135	70.7	149065	87.4	2550	36.2
Brant	26905	78.8	6310	66.7	19900	85.8	350	32.6
Bruce	12975	75.7	3695	71.1	8975	80.1	215	34.3
Grey	18680	78.3	4795	70.5	13455	84.1	290	33.0
Oxford	22685	80.1	5435	66.5	16705	87.8	265	33.6
Perth	18240	82.2	4905	74.9	12920	87.4	260	38.1
Waterloo	74730	84.4	18280	73.7	54800	90.2	800	40.7
Wellington	30615	80.2	7715	68.2	22310	87.3	370	36.3
Niagara Region:	234900	79.8	54385	66.0	175215	87.1	2710	34.5
Haldimand	9095	78.8	2310	67.7	6555	85.9	145	37.0
Niagara[3]	96285	79.6	21485	64.6	72825	87.2	1080	34.5
Norfolk	14755	76.3	3570	64.4	10845	83.1	175	80.2
Wentworth	114765	80.4	27020	67.3	84990	87.6	1310	34.7
Central Region:	931575	83.3	223215	68.9	686350	89.5	9855	37.3
Dufferin	5990	81.0	1470	70.6	4425	87.3	70	33.8
Durham	13050	78.8	2905	62.1	9920	87.4	130	31.9
Haliburton	2300	68.6	530	63.8	1725	73.6	25	16.6
Halton	55200	85.8	10750	66.8	43490	93.4	465	39.9
Ontario	54000	81.1	10890	62.6	42170	89.4	440	30.1
Peel	75665	87.6	14255	68.8	60260	94.5	535	43.6
Simcoe	46100	76.1	11445	61.4	33645	84.8	545	33.0
Toronto[4]	624090	82.4	158860	70.7	448575	89.1	7090	38.6
Victoria	9080	73.8	2265	67.0	6610	78.9	145	31.2
York[5]	46100	81.4	9845	64.2	35530	89.7	410	31.5

Table 4.6 (cont'd)

County, District or Regional Area	Marital Status of Male Participants in Labour Force Aged 15 Years and Over							
	Total		Single		Married (Inc. Separated)		Widowed	
	Number in Labour Force	Participation Rate per 100	Number in Labour Force	Participation Rate per 100	Number in Labour Force	Participation Rate per 100	Number in Labour Force	Participation Rate per 100
Eastern Region:	124655	76.8	29270	62.4	92500	85.0	1495	31.9
Frontenac	27415	75.8	6440	59.1	20245	85.0	330	35.8
Grenville	6695	77.7	1595	66.3	4920	83.9	105	38.5
Hastings	26700	77.3	6165	62.5	19920	85.5	320	31.2
Leeds	13550	76.8	3205	62.2	10030	85.3	175	31.8
Lennox & Addington	7610	75.1	1740	60.0	5725	83.7	70	26.6
Northumberland	13040	76.8	3110	65.7	9660	83.7	180	31.2
Peterborough	24120	78.3	5675	63.9	17915	86.6	260	29.4
Prince Edward	5525	75.4	1340	64.1	4085	82.1	55	26.7
Ottawa Valley Region:	202755	80.0	53975	65.2	144795	86.7	2200	33.0
Dundas	4830	77.8	1265	68.8	3485	84.4	55	24.9
Glengarry	4520	69.1	1415	61.6	3025	76.3	55	23.0
Lanark	11040	72.6	2840	55.9	7905	83.3	185	36.2
Ottawa-Carleton[6]	132520	81.2	35135	67.9	94655	89.1	1415	37.7
Prescott	6510	68.5	1875	56.8	4565	77.0	60	23.3
Renfrew	23930	76.2	6380	62.7	17135	85.1	240	26.8
Russell	3695	66.2	1125	57.4	2530	73.4	35	21.0
Stormont	15710	75.0	3940	61.0	11495	83.8	155	25.0

* Labour force refers to non-inmates 15 years and over who, in the week prior to enumeration, worked for pay or profit, helped without pay in a family business or farm, looked for work, were on temporary lay-off or had jobs from which they were temporarily absent because of illness, vacation, strike, etc. Persons doing housework in their own home, or volunteer work only, are excluded from the labour force.

1. Includes Patricia Portion.
2. The District Municipality of Muskoka, formerly the District of Muskoka.
3. The Regional Municipality of Niagara, formerly Lincoln and Welland Counties.
4. The Municipality of Metropolitan Toronto, formerly part of York County.
5. The Regional Municipality of York, formerly part of York County.
6. The Regional Municipality of Ottawa-Carleton, formerly Carleton County and Cumberland Township in Russell County.

Source: Computed from Statistics Canada, 1971 Census of Canada, Labour Force and Individual Income, Bulletin 3.1-6 (Ottawa: Information Canada, 1974), Cat. 94-706, Table 15.

TABLE 4.7

FEMALE LABOUR FORCE* PARTICIPATION BY MARITAL STATUS FOR EDUCATION REGIONS IN ONTARIO, 1971

County, District or Regional Area	Marital Status of Female Participants in Labour Force Aged 15 Years and Over							
	Total		Single		Married (Inc. Separated)		Widowed	
	Number in Labour Force	Participation Rate per 100	Number in Labour Force	Participation Rate per 100	Number in Labour Force	Participation Rate per 100	Number in Labour Force	Participation Rate per 100
Northwestern Region:	29215	39.0	7940	49.3	19040	37.8	1820	23.5
Kenora[1]	5990	36.1	1495	42.9	4045	35.1	365	24.8
Rainy River	3275	38.9	875	51.4	2170	37.9	215	22.6
Thunder Bay	19950	40.1	5570	51.1	12825	38.8	1240	23.4
Midnorthern Region:	38020	36.1	10885	48.0	24470	33.6	2105	23.8
Algoma	14700	37.1	4250	49.7	9270	34.7	910	23.7
Manitoulin	1280	35.6	295	37.0	820	36.9	155	28.2
Sudbury	22040	35.4	6340	47.5	14380	32.7	1040	23.5
Northeastern Region:	33290	35.1	9330	44.2	21400	34.1	2045	20.0
Cochrane	10020	33.1	2930	43.4	6490	31.6	485	17.8
Muskoka[2]	4280	36.0	975	38.4	2915	38.1	295	18.7
Nipissing	9745	37.1	2965	47.3	6060	35.4	590	22.6
Parry Sound	3805	35.6	995	47.9	2475	34.8	265	19.5
Timiskaming	5440	34.4	1465	42.3	3460	33.7	410	21.6
Western Region:	140585	42.1	38445	53.4	89815	41.2	8835	23.1
Elgin	10515	43.1	2410	49.4	7155	45.0	725	22.0
Essex	43690	39.8	12595	54.4	26920	37.6	2915	22.1
Huron	7195	38.8	1655	44.5	5040	40.4	435	19.2
Kent	14230	39.5	3585	47.7	9440	39.9	940	21.3
Lambton	15635	39.1	3880	46.7	10445	38.4	970	24.1
Middlesex	49320	47.1	14320	58.5	30815	45.8	2850	25.9

Table 4.7 (cont'd)

County, District or Regional Area	Marital Status of Female Participants in Labour Force Aged 15 Years and Over							
	Total		Single		Married (Inc. Separated)		Widowed	
	Number in Labour Force	Participation Rate per 100	Number in Labour Force	Participation Rate per 100	Number in Labour Force	Participation Rate per 100	Number in Labour Force	Participation Rate per 100
Midwestern Region:	116525	45.3	30030	54.8	77430	45.5	6900	23.9
Brant	15630	44.3	3965	53.3	10290	44.8	1005	22.9
Bruce	6250	37.7	1360	42.0	4355	39.6	465	21.2
Grey	10365	42.8	2330	48.0	7230	45.1	660	21.1
Oxford	12415	42.9	2930	47.6	8440	44.5	835	24.2
Perth	10435	45.9	2645	53.7	6880	46.8	715	24.8
Waterloo	44085	48.5	12395	62.1	28560	46.7	2260	26.5
Wellington	17345	45.1	4405	53.5	11675	45.8	960	22.6
Niagara Region:	123715	40.6	33820	52.8	79895	39.4	7145	21.2
Haldimand	4415	39.5	1050	47.6	3060	40.3	275	21.1
Niagara[3]	49200	39.2	13555	52.0	31655	37.6	2865	21.2
Norfolk	8665	44.8	1760	47.3	6205	47.3	530	23.6
Wentworth	61435	41.3	17455	54.4	38975	39.9	3475	20.8
Central Region:	563000	47.9	163915	61.4	358690	46.7	29105	24.6
Dufferin	3030	41.5	600	42.6	6490	31.6	485	17.8
Durham	6165	37.5	1560	47.2	4235	37.3	275	17.2
Haliburton	1190	35.5	245	44.1	875	37.0	50	12.9
Halton	27395	42.6	6695	54.0	19110	40.9	1060	24.2
Ontario	27290	40.8	6140	47.9	19295	40.8	1285	21.3
Peel	40500	47.3	8755	56.3	29585	46.5	1355	25.2
Simcoe	25085	41.5	6110	47.2	17005	42.6	1420	20.9
Toronto[4]	403705	50.4	126870	65.4	242260	48.1	21800	25.4
Victoria	4945	38.8	1115	44.0	3425	40.8	320	18.9
York[5]	23695	41.5	5825	51.4	16410	41.1	1055	20.4

Table 4.7 (cont'd)

County, District or Regional Area	Marital Status of Female Participants in Labour Force Aged 15 Years and Over							
	Total		Single		Married (Inc. Separated)		Widowed	
	Number in Labour Force	Participation Rate per 100	Number in Labour Force	Participation Rate per 100	Number in Labour Force	Participation Rate per 100	Number in Labour Force	Participation Rate per 100
Eastern Region:	68690	41.3	17875	49.2	45185	41.7	4200	21.7
Frontenac	16585	44.7	4965	54.8	10245	43.7	890	22.9
Grenville	3625	41.9	675	39.5	2610	45.5	280	25.3
Hastings	14240	40.4	3670	49.1	9430	40.3	870	22.2
Leeds	7895	42.6	1910	48.3	5255	44.1	600	24.3
Lennox & Addington	3530	36.8	735	41.4	2555	38.4	190	17.4
Northumberland	6715	38.7	1425	40.0	4810	41.9	365	17.7
Peterborough	13255	40.9	3880	52.8	8275	39.8	830	21.6
Prince Edward	2845	38.2	615	41.9	2005	40.8	175	17.7
Ottawa Valley Region:	119795	44.1	40065	55.9	70585	42.1	6780	23.8
Dundas	2460	39.8	530	42.7	1735	42.1	165	20.9
Glengarry	2255	35.9	655	41.9	1500	37.8	85	11.7
Lanark	6715	43.3	1555	40.6	4575	48.7	485	22.6
Ottawa-Carleton[6]	83545	47.5	30220	61.8	46850	43.8	4535	26.2
Prescott	3010	32.0	1030	42.2	1800	30.5	170	16.2
Renfrew	11590	37.7	3120	44.5	7590	37.7	730	21.7
Russell	1700	32.3	545	41.6	1090	31.9	55	10.8
Stormont	8520	38.6	2410	45.0	5445	39.4	555	20.8

* Labour force refers to non-inmates 15 years and over who, in the week prior to enumeration, worked for pay or profit, helped without pay in a family business or farm, looked for work, were on temporary lay-off or had jobs from which they were temporarily absent because of illness, vacation, strike, etc. Persons doing housework in their own home, or volunteer work only, are excluded from the labour force. Also excluded are female farm workers who indicated that they helped without pay in a family farm or business for less than 20 hours.

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Source: Computed from Statistics Canada, 1971 Census of Canada, Labour Force and Individual Income, Bulletin 3.1-6 (Ottawa: Information Canada, 1974), Cat. 94-706, Table 15.

TABLE 4.8

PERCENTAGE DISTRIBUTION OF POPULATION BY ETHNIC GROUP FOR EDUCATION REGIONS IN ONTARIO, 1971

Origin	Percentage Distribution of Population by Education Region																			
	Northwestern Region		Midnorthern Region		Northeastern Region		Western Region		Midwestern Region		Niagara Region		Central Region		Eastern Region		Ottawa Valley Region		ONTARIO	
	Number	%	Number	%	Number	%	Number	%	Number	%	Number	%	Number	%	Number	%	Number	%	Number	%
British Isles[1]	95365	42.50	140620	42.49	133775	47.21	581695	62.99	451755	63.06	481290	57.57	1910850	60.06	371295	80.64	409400	54.85	4576045	59.41
Other European Origins																				
French	20300	9.05	98260	29.69	101375	35.77	92125	9.98	23050	3.22	47565	5.69	123155	3.87	24210	5.26	207325	27.77	737365	9.57
Austrian	570	0.25	410	0.12	370	0.13	1355	0.15	1225	0.17	1660	0.20	8770	0.28	405	0.09	1015	0.13	15780	0.20
Czech and Slovak	2645	1.17	1085	0.33	730	0.26	8070	0.87	2550	0.36	6005	0.71	16840	0.53	1120	0.24	1730	0.23	40775	0.53
Finnish	12000	5.35	9920	3.00	3085	1.09	1080	0.12	490	0.07	1165	0.14	9695	0.30	560	0.12	505	0.07	38500	0.50
German	11540	5.14	11765	3.56	9915	3.50	56005	6.06	130530	18.22	62575	7.48	141225	4.44	16315	3.54	35450	4.75	475320	6.17
Hungarian	1245	0.55	800	0.24	405	0.14	9755	1.06	6710	0.94	16560	1.98	27095	0.85	960	0.21	2185	0.29	65715	0.85
Italian	12850'	5.73	24890	7.52	6800	2.40	33100	3.58	14425	2.01	69365	8.30	280630	8.82	4725	1.03	16285	2.18	463070	6.01
Jewish	325	0.14	525	0.16	680	0.24	5050	0.55	2315	0.32	5670	0.68	111425	3.50	1460	0.32	7740	1.04	135190	1.76
Netherlands	3850	1.72	3445	1.04	3170	1.12	39940	4.33	24590	3.43	33535	4.01	67275	2.11	17280	3.75	13855	1.86	206940	2.69
Polish	7460	3.32	5540	1.67	3735	1.32	14090	1.52	13705	1.91	24265	2.90	59780	1.88	3135	0.68	12390	1.66	144100	1.87
Russian	475	0.21	295	0.09	355	0.12	1810	0.20	795	0.11	1705	0.20	5930	0.19	320	0.07	890	0.12	12575	0.16
Scandinavian[2]	10650	4.75	3285	0.99	2625	0.93	5840	0.63	3400	0.47	4990	0.60	21925	0.69	2990	0.65	4520	0.60	60225	0.78
Ukrainian	18285	8.15	10215	3.09	3495	1.23	13780	1.49	7465	1.04	26960	3.23	71075	2.23	2420	0.53	6195	0.83	159890	2.08
Asiatic Origins																				
Chinese	460	0.20	650	0.20	980	0.35	2190	0.24	1350	0.19	1935	0.23	27275	0.86	1055	0.23	3445	0.46	39340	0.51
Japanese	510	0.23	70	0.02	95	0.03	660	0.08	335	0.05	1270	0.15	12095	0.38	135	0.03	430	0.06	15600	0.20
Other																				
Native Indian	17785	7.93	7820	2.36	6125	2.16	6590	0.71	5890	0.82	3815	0.46	8900	0.28	3050	0.66	2455	0.33	62430	0.81
Negro	90	0.04	190	0.06	75	0.03	2300	0.25	655	0.09	1080	0.13	12705	0.40	215	0.05	880	0.12	18190	0.24
West Indian	35	0.02	185	0.06	45	0.01	690	0.07	665	0.09	960	0.12	16045	0.50	205	0.04	730	0.10	19560	0.25
Other and not Stated	7955	3.55	10960	3.31	5555	1.96	47305	5.12	24550	3.43	43645	5.22	248950	7.83	8585	1.86	19015	2.55	416520	5.41
Total	224395	100.00	330930	100.00	283390	100.00	923430	100.00	716450	100.00	836015	100.00	3181640	100.00	460440	100.00	746440	100.00	7703130	100.00

1. Includes English, Irish, Scottish and Welsh. 2. Includes Danish, Icelandic, Norwegian and Swedish.

Source: Statistics Canada, 1971 Census of Canada, Population Ethnic Groups, Bulletin 1.3-2 (Ottawa: Information Canada, 1973), Cat. 92-723, Table 4.

TABLE 4.9

PERCENTAGE DISTRIBUTION OF POPULATION BY ETHNIC GROUP FOR COUNTIES, DISTRICTS AND REGIONAL AREAS IN EDUCATION REGIONS, 1971

Origin	Percentage Distribution of Population by County, District or Regional Area							
	Kenora[1]		Rainy River		Thunder Bay		Northwestern Region	
	Number	%	Number	%	Number	%	Number	%
British Isles[7]	20765	39.00	12955	50.30	61645	42.40	95365	42.50
Other European Origins								
French	4915	9.23	2420	9.39	12965	8.92	20300	9.05
Austrian	185	0.35	45	0.17	340	0.23	570	0.25
Czech and Slovak	345	0.65	80	0.31	2220	1.52	2645	1.17
Finnish	370	0.69	525	2.04	11105	7.64	12000	5.35
German	3605	6.77	1675	6.50	6260	4.31	11540	5.14
Hungarian	245	0.46	275	1.07	725	0.50	1245	0.55
Italian	990	1.86	270	1.05	11590	7.97	12850	5.73
Jewish	55	0.10	15	0.06	255	0.17	325	0.14
Netherlands	710	1.33	700	2.72	2440	1.68	3850	1.72
Polish	1410	2.65	545	2.12	5505	3.79	7460	3.32
Russian	120	0.23	45	0.17	310	0.21	475	0.21
Scandinavian[8]	3210	6.03	1890	7.34	5550	3.82	10650	4.75
Ukrainian	3740	7.02	2055	7.98	12490	8.59	18285	8.15
Asiatic Origins								
Chinese	95	0.18	25	0.10	340	0.23	460	0.20
Japanese	70	0.13	-	-	440	0.30	510	0.23
Other								
Native Indian	11180	21.00	1810	7.03	4795	3.30	17785	7.93
Negro	20	0.04	5	0.02	65	0.04	90	0.04
West Indian	20	0.04	-	-	15	0.01	35	0.02
Other and not stated	1195	2.24	420	1.63	6340	4.36	7955	3.55
Total	53245	100.00	25755	100.00	145395	100.00	224 395	100.00

Table 4.9 (cont'd)

Origin	Percentage Distribution of Population by County, District or Regional Area							
	Algoma		Manitoulin		Sudbury		Midnorthern Region	
	Number	%	Number	%	Number	%	Number	%
British Isles[7]	60260	49.42	6930	63.49	73430	37.07	14062	42.49
Other European Origin								
French	21670	17.77	305	2.79	76285	38.51	98260	29.69
Austrian	170	0.14	-	-	240	0.12	410	0.12
Czech and Slovak	415	0.34	20	0.18	650	0.33	1085	0.33
Finnish	2805	2.30	20	0.18	7095	3.58	9920	3.00
German	4735	3.88	195	1.79	6835	3.45	11765	3.56
Hungarian	340	0.28	-	-	460	0.23	800	0.24
Italian	13990	11.47	65	0.60	10835	5.47	24890	7.52
Jewish	205	0.17	-	-	320	0.16	525	0.16
Netherlands	1385	1.14	160	1.47	1900	0.96	3445	1.04
Polish	2175	1.78	45	0.41	3320	1.68	5540	1.67
Russian	105	0.09	25	0.23	165	0.08	295	0.09
Scandinavian [8]	1700	1.39	30	0.27	1555	0.78	3285	0.99
Ukrainian	3670	3.01	40	0.37	6505	3.28	10215	3.09
Asiatic Origins								
Chinese	250	0.21	10	0.09	390	0.20	650	0.20
Japanese	10	0.01	-	-	60	0.03	70	0.02
Other								
Native Indian	3505	2.87	2950	27.03	1365	0.69	7820	2.36
Negro	20	0.02	-	-	170	0.09	190	0.06
West Indian	35	0.03	-	-	150	0.08	185	0.06
Other and not stated	4490	3.68	120	1.10	6350	3.21	10960	3.31
Total	121935	100.00	10915	100.00	198080	100.00	330930	100.00

Table 4.9 (cont'd)

Origin	Percentage Distribution of Population by County, District or Regional Area											
	Cochrane		Muskoka[2]		Nipissing		Parry Sound		Timiskaming		Northeastern Region	
	Number	%	Number	%	Number	%	Number	%	Number	%	Number	%
British Isles[7]	27475	28.67	25515	79.86	35805	45.40	21540	71.21	23440	50.40	133775	47.21
Other European Origins												
French	50000	52.17	1590	4.98	31630	40.10	2675	8.84	15480	33.29	101375	35.77
Austrian	135	0.14	30	0.09	100	0.13	50	0.17	55	0.12	370	0.13
Czech and Slovak	405	0.43	65	0.20	115	0.15	30	0.10	115	0.24	730	0.26
Finnish	1610	1.68	105	0.33	280	0.36	375	1.24	715	1.54	3085	1.09
German	1875	1.96	1850	5.79	2735	3.47	2155	7.12	1300	2.80	9915	3.50
Hungarian	80	0.08	45	0.14	130	0.16	70	0.23	80	0.17	405	0.14
Italian	3140	3.28	290	0.91	2245	2.85	370	1.22	755	1.62	6800	2.40
Jewish	200	0.21	120	0.37	205	0.26	10	0.03	145	0.31	680	0.24
Netherlands	675	0.71	630	1.97	670	0.85	740	2.45	455	0.98	3170	1.12
Polish	1435	1.50	195	0.61	880	1.11	245	0.81	980	2.11	3735	1.32
Russian	155	0.16	15	0.05	60	0.08	20	0.07	105	0.23	355	0.12
Scandinavian[8]	735	0.77	370	1.16	645	0.82	380	1.26	495	1.07	2625	0.93
Ukrainian	1525	1.59	235	0.73	790	1.00	265	0.88	680	1.46	3495	1.23
Asiatic Origins												
Chinese	415	0.43	45	0.14	300	0.38	20	0.07	200	0.43	980	0.35
Japanese	60	0.06	10	0.03	20	0.02	5	0.02	-	-	95	0.03
Other												
Native Indian	3500	3.65	415	1.30	1095	1.39	765	2.53	350	0.75	6125	2.16
Negro	20	0.02	-	-	35	0.04	10	0.03	10	0.02	75	0.03
West Indian	-	-	15	0.05	15	0.02	5	0.02	10	0.02	45	0.01
Other and not stated	2385	2.49	405	1.27	1110	1.41	520	1.72	1135	2.44	5555	1.96
Total	95825	100.00	31945	100.00	78865	100.00	30250	100.00	46505	100.00	283390	100.00

Table 4.9 (cont'd)

Origin	Percentage Distribution of Population by County, District or Regional Area													
	Elgin		Essex		Huron		Kent		Lambton		Middlesex		Western Region	
	Number	%	Number	%	Number	%	Number	%	Number	%	Number	%	Number	%
British Isles[7]	48165	72.32	148830	48.57	39840	75.21	64275	63.57	80220	70.17	200365	71.05	581695	62.99
Other European Origins														
French	1710	2.57	58850	19.21	1740	3.28	12290	12.16	8035	7.03	9500	3.37	92125	9.98
Austrian	90	0.14	590	0.19	65	0.12	55	0.06	125	0.11	430	0.15	1355	0.15
Czech and Slovak	215	0.32	3520	1.15	50	0.10	1895	1.88	1185	1.04	1205	0.43	8070	0.87
Finnish	20	0.03	590	0.19	10	0.02	25	0.03	210	0.18	225	0.08	1080	0.12
German	5295	7.95	19905	6.50	5695	10.75	3875	3.83	4870	4.26	16365	5.80	56005	6.06
Hungarian	970	1.46	4890	1.60	125	0.24	715	0.71	450	0.39	2605	0.92	9755	1.06
Italian	445	0.67	22455	7.33	155	0.29	1160	1.15	2195	1.92	6690	2.37	33100	3.58
Jewish	90	0.14	2635	0.86	40	0.08	235	0.23	270	0.24	1780	0.63	5050	0.55
Netherlands	4235	6.36	4360	1.42	3810	7.19	7040	6.96	6865	6.01	13630	4.83	39940	4.33
Polish	760	1.14	6290	2.05	170	0.32	1035	1.02	1375	1.20	4460	1.58	14090	1.52
Russian	145	0.22	955	0.31	15	0.03	50	0.05	85	0.07	560	0.20	1810	0.20
Scandinavian[8]	335	0.50	1475	0.48	330	0.62	400	0.40	920	0.81	2380	0.84	5840	0.63
Ukrainian	400	0.60	7715	2.52	200	0.38	1000	0.99	1155	1.01	3310	1.17	13780	1.49
Asiatic Origins														
Chinese	20	0.03	1095	0.36	45	0.08	80	0.08	145	0.13	805	0.29	2190	0.24
Japanese	25	0.04	100	0.03	15	0.03	185	0.18	20	0.02	315	0.11	660	0.08
Other														
Native Indian	195	0.29	740	0.24	85	0.16	495	0.49	2690	2.35	2385	0.85	6590	0.71
Negro	-	-	1220	0.40	20	0.04	640	0.63	35	0.03	385	0.14	2300	0.25
West Indian	40	0.06	190	0.06	25	0.05	20	0.02	115	0.10	300	0.11	690	0.07
Other and not stated	3455	5.19	20005	6.53	535	1.01	5635	5.57	3345	2.93	14300	5.08	47305	5.12
Total	66605	100.00	306410	100.00	52970	100.00	101105	100.00	114315	100.00	282025	100.00	923430	100.00

Table 4.9 (cont'd)

Origin	Percentage Distribution of Population by County, District or Regional Area															
	Brant		Bruce		Grey		Oxford		Perth		Waterloo		Wellington		Midwestern Region	
	Number	%	Number	%	Number	%	Number	%	Number	%	Number	%	Number	%	Number	%
British Isles[7]	65960	68.17	33465	70.62	53460	80.51	56485	70.32	41120	65.31	125390	49.36	75875	69.89	451755	63.06
Other European Origins																
French	3150	3.26	1220	2.57	905	1.36	2675	3.33	1465	2.33	10785	4.24	2850	2.63	23050	3.22
Austrian	155	0.16	45	0.10	40	0.06	50	0.06	65	0.10	785	0.31	85	0.08	1225	0.17
Czech and Slovak	395	0.40	45	0.09	65	0.10	100	0.13	65	0.11	1520	0.59	360	0.33	2550	0.36
Finnish	75	0.08	15	0.03	30	0.04	20	0.03	30	0.05	250	0.10	70	0.06	490	0.07
German	4880	5.04	9325	19.68	8265	12.45	8090	10.07	14165	22.50	75395	29.68	10410	9.59	130530	18.22
Hungarian	2480	2.56	90	0.19	70	0.11	1420	1.77	170	0.27	1905	0.75	575	0.53	6710	0.94
Italian	2695	2.79	95	0.20	150	0.23	1000	1.24	505	0.80	3295	1.30	6685	6.16	14425	2.01
Jewish	340	0.35	15	0.03	85	0.13	75	0.09	75	0.12	1265	0.50	460	0.42	2315	0.32
Netherlands	3435	3.55	1120	2.36	1445	2.18	5275	6.57	2930	4.65	5200	2.05	5185	4.77	24590	3.43
Polish	3380	3.49	230	0.49	260	0.39	1265	1.57	380	0.60	6740	2.65	1450	1.33	13705	1.91
Russian	90	0.09	10	0.02	-	-	90	0.11	30	0.05	490	0.19	85	0.08	795	0.11
Scandinavian[8]	450	0.46	180	0.38	265	0.40	340	0.42	215	0.34	1285	0.51	665	0.61	3400	0.47
Ukrainian	2165	2.24	145	0.31	320	0.48	600	0.75	270	0.43	3325	1.31	640	0.59	7465	1.04
Asiatic Origins																
Chinese	155	0.16	45	0.10	10	0.01	150	0.19	55	0.09	570	0.22	365	0.34	1350	0.19
Japanese	45	0.05	5	0.01	-	-	10	0.01	20	0.03	205	0.08	50	0.05	335	0.05
Other																
Native Indian	4045	4.18	915	1.93	100	0.15	180	0.22	65	0.10	395	0.16	190	0.18	5890	0.82
Negro	105	0.11	5	0.01	110	0.17	20	0.02	30	0.05	260	0.10	125	0.11	655	0.09
West Indian	45	0.05	25	0.05	-	-	15	0.02	5	0.01	505	0.20	70	0.06	665	0.09
Other and not stated	2720	2.81	395	0.83	820	1.23	2470	3.08	1300	2.06	14470	5.70	2375	2.19	24550	3.43
Total	96765	100.00	47390	100.00	66400	100.00	80330	100.00	62960	100.00	254035	100.00	108570	100.00	716450	100.00

Table 4.9 (cont'd)

Origin	Percentage Distribution of Population by County, District or Regional Area									
	Haldimand		Niagara[3]		Norfolk		Wentworth		Niagara Region	
	Number	%	Number	%	Number	%	Number	%	Number	%
British Isles[7]	21065	64.45	187730	54.05	32540	60.15	239955	59.71	481290	57.57
Other European Origins										
French	970	2.97	27845	8.02	1865	3.45	16885	4.20	47565	5.69
Austrian	20	0.06	610	0.18	65	0.12	965	0.24	1660	0.20
Czech and Slovak	115	0.35	2905	0.83	370	0.68	2615	0.65	6005	0.71
Finnish	40	0.12	600	0.17	75	0.14	450	0.11	1165	0.14
German	4285	13.11	32150	9.26	4825	8.92	21315	5.30	62575	7.48
Hungarian	415	1.27	7405	2.13	2285	4.22	6455	1.61	16560	1.98
Italian	475	1.45	30625	8.82	225	0.42	38040	9.47	69365	8.30
Jewish	50	0.15	1325	0.38	50	0.09	4245	1.06	5670	0.68
Netherlands	2620	8.02	15285	4.40	2765	5.11	12865	3.20	33535	4.01
Polish	350	1.07	10150	2.92	1140	2.11	12625	3.14	24265	2.90
Russian	-	-	895	0.26	120	0.22	690	0.17	1705	0.20
Scandinavian[8]	175	0.54	2260	0.65	190	0.35	2365	0.59	4990	0.60
Ukrainian	345	1.06	13245	3.81	1840	3.40	11530	2.87	26960	3.23
Asiatic Origins										
Chinese	80	0.24	590	0.17	65	0.12	1200	0.30	1935	0.23
Japanese	-	-	225	0.06	10	0.02	1035	0.26	1270	0.15
Other										
Native Indian	895	2.74	915	0.26	305	0.56	1700	0.42	3815	0.46
Negro	-	-	330	0.10	15	0.03	735	0.18	1080	0.13
West Indian	10	0.03	140	0.04	-	-	810	0.20	960	0.12
Other and not stated	775	2.37	12105	3.49	5350	9.89	25415	6.32	43645	5.22
	32685	100.00	347135	100.00	54100	100.00	401895	100.00	836015	100.00

Table 4.9 (cont'd)

Percentage Distribution of Population by County, District or Regional Area

Origin	Dufferin		Durham		Haliburton		Halton		Ontario		Peel		Simcoe		Toronto[4]		Victoria		York[5]		Central Region	
	Number	%	Number	%	Number	%	Number	%	Number	%	Number	%	Number	%	Number	%	Number	%	Number	%	Number	%
British Isles[7]	17575	82.90	37250	78.43	7930	87.48	134440	70.59	140610	71.64	179445	69.18	128180	74.77	1111625	53.29	29890	87.30	123905	74.61	1910850	60.06
Other European Origins																						
French	520	2.45	1625	3.42	295	3.25	7345	3.86	9620	4.90	10255	3.95	16070	9.37	71885	3.45	940	2.74	4600	2.77	123155	3.87
Austrian	10	0.05	60	0.13	-	-	380	0.20	520	0.27	680	0.26	200	0.12	6210	0.30	25	0.07	685	0.41	8770	0.28
Czech and Slovak	5	0.02	155	0.32	-	-	935	0.49	1050	0.53	1335	0.51	585	0.34	12310	0.59	75	0.22	390	0.24	16840	0.53
Finnish	10	0.05	65	0.14	15	0.17	280	0.15	330	0.17	520	0.20	270	0.16	7775	0.37	70	0.20	360	0.22	9695	0.30
German	810	3.82	1770	3.73	445	4.90	11180	5.87	9755	4.97	14510	5.59	7220	4.21	84885	4.07	940	2.75	9710	5.85	141225	4.44
Hungarian	55	0.26	265	0.56	5	0.06	1690	0.89	1480	0.75	1800	0.69	700	0.41	20205	0.97	60	0.18	835	0.50	27095	0.85
Italian	170	0.80	205	0.43	60	0.66	6015	3.16	4415	2.25	12075	4.66	2210	1.29	250190	11.99	160	0.47	5130	3.09	280630	8.82
Jewish	15	0.07	70	0.15	5	0.06	630	0.33	740	0.38	625	0.24	405	0.24	106960	5.13	25	0.07	1950	1.17	111425	3.50
Netherlands	1205	5.68	3625	7.63	85	0.94	8680	4.56	7755	3.95	8210	3.17	5935	3.46	24265	1.16	975	2.85	6540	3.94	67275	2.11
Polish	85	0.40	495	1.04	55	0.61	3335	1.75	4565	2.33	4255	1.64	1590	0.93	43520	2.09	140	0.41	1740	1.05	59780	1.88
Russian	10	0.05	35	0.07	-	-	335	0.17	350	0.18	475	0.18	110	0.07	4360	0.21	-	-	255	0.15	5930	0.19
Scandinavian[8]	105	0.49	245	0.51	70	0.77	2120	1.11	1275	0.65	2280	0.88	930	0.54	12820	0.61	135	0.39	1945	1.17	21925	0.69
Ukrainian	135	0.64	700	1.47	20	0.22	3835	2.01	5620	2.86	5245	2.02	1715	1.00	51350	2.46	190	0.56	2265	1.36	71075	2.23
Asiatic Origins																						
Chinese	15	0.07	80	0.17	-	-	325	0.17	490	0.25	655	0.25	315	0.18	25050	1.20	55	0.16	290	0.17	27275	0.86
Japanese	10	0.05	20	0.04	-	-	365	0.19	130	0.07	610	0.24	120	0.07	10665	0.51	-	-	175	0.11	12095	0.38
Other																						
Native Indian	50	0.24	125	0.26	20	0.22	440	0.23	790	0.40	385	0.15	930	0.54	5540	0.26	110	0.32	510	0.31	8900	0.28
Negro	10	0.05	10	0.02	-	-	205	0.11	235	0.12	380	0.15	90	0.05	11670	0.56	5	0.01	100	0.06	12705	0.40
West Indian	5	0.02	65	0.14	-	-	170	0.09	290	0.15	670	0.26	75	0.04	14520	0.70	5	0.01	245	0.15	16045	0.50
Other and not stated	400	1.89	635	1.34	60	0.66	7755	4.07	6240	3.18	14995	5.78	3780	2.21	210210	10.08	440	1.29	4435	2.67	248950	7.83
Total	21200	100.00	47500	100.00	9065	100.00	190460	100.00	196260	100.00	259405	100.00	171430	100.00	2086015	100.00	34240	100.00	166065	100.00	318164	100.00

Table 4.9 (cont'd)

Origin	Percentage Distribution of Population by County, District or Regional Area																	
	Frontenac		Grenville		Hastings		Leeds		Lennox and Addington		Northumberland		Peterborough		Prince Edward		Eastern Region	
	Number	%	Number	%	Number	%	Number	%	Number	%	Number	%	Number	%	Number	%	Number	%
British Isles[7]	78635	77.34	18885	77.65	77960	78.43	41760	83.35	22975	81.06	39950	82.97	73915	84.19	17215	83.36	371295	80.64
Other European Origins																		
French	6370	6.27	1925	7.92	6585	6.62	2665	5.32	1170	4.13	1625	3.38	3280	3.73	590	2.86	24210	5.26
Austrian	80	0.08	30	0.12	85	0.08	25	0.05	20	0.07	80	0.17	85	0.10	-	-	405	0.09
Czech and Slovak	370	0.37	50	0.21	370	0.37	65	0.13	40	0.14	95	0.20	130	0.15	-	-	1120	0.24
Finnish	175	0.17	55	0.23	130	0.13	30	0.06	15	0.05	40	0.08	95	0.11	20	0.10	560	0.12
German	3580	3.52	805	3.31	4240	4.26	1420	2.83	1360	4.80	1615	3.35	2640	3.01	655	3.17	16315	3.54
Hungarian	225	0.22	50	0.21	200	0.20	100	0.20	70	0.25	90	0.19	175	0.20	50	0.24	960	0.21
Italian	1410	1.39	155	0.64	910	0.92	350	0.70	60	0.21	395	0.82	1355	1.54	90	0.44	4725	1.03
Jewish	715	0.70	35	0.14	240	0.24	100	0.20	35	0.12	55	0.11	245	0.28	35	0.17	1460	0.32
Netherlands	3420	3.36	1470	6.04	3145	3.16	2245	4.48	1320	4.66	2180	4.53	2275	2.59	1225	5.93	17280	3.75
Polish	810	0.80	210	0.86	785	0.79	185	0.37	125	0.44	330	0.69	595	0.68	95	0.46	3135	0.68
Russian	75	0.07	10	0.04	75	0.08	25	0.05	5	0.02	65	0.13	55	0.06	10	0.05	320	0.07
Scandinavian[8]	875	0.86	150	0.62	525	0.53	185	0.37	290	1.02	305	0.63	485	0.55	175	0.85	2990	0.65
Ukrainian	555	0.55	105	0.43	690	0.69	160	0.32	110	0.39	340	0.71	335	0.38	125	0.60	2420	0.53
Asiatic Origins																		
Chinese	455	0.45	5	0.02	195	0.20	180	0.36	55	0.19	35	0.07	120	0.14	10	0.05	1055	0.23
Japanese	45	0.04	-	-	45	0.05	-	-	-	-	5	0.01	40	0.04	-	-	135	0.03
Other																		
Native Indian	310	0.30	40	0.16	1370	1.38	95	0.19	140	0.49	235	0.49	780	0.89	80	0.39	3050	0.66
Negro	115	0.11	15	0.06	20	0.02	10	0.02	5	0.02	15	0.03	35	0.04	-	-	215	0.05
West Indian	70	0.07	15	0.06	65	0.07	10	0.02	5	0.02	20	0.04	15	0.02	5	0.02	205	0.04
Other and not stated	3385	3.33	310	1.28	1765	1.78	490	0.98	545	1.92	675	1.40	1145	1.30	270	1.31	8585	1.86
Total	101675	100.00	24320	100.00	99400	100.00	50100	100.00	28345	100.00	48150	100.00	87800	100.00	20650	100.00	460440	100.00

Table 4.9 (cont'd)

Origin	Percentage Distribution of Population by County, District or Regional Area																	
	Dundas		Glengarry		Lanark		Ottawa-Carleton[6]		Prescott		Renfrew		Russell		Stormont		Ottawa Valley Region	
	Number	%	Number	%	Number	%	Number	%	Number	%	Number	%	Number	%	Number	%	Number	%
British Isles[7]	12505	71.68	7560	40.91	35980	85.14	264955	56.14	4290	15.41	53885	59.30	2035	12.49	28190	45.98	409400	54.85
Other European Origins																		
French	1555	8.91	9695	52.46	2620	6.20	117465	24.89	22605	81.18	12455	13.71	13740	84.32	27190	44.34	207325	27.77
Austrian	15	0.08	15	0.08	40	0.09	900	0.19	-	-	40	00.04	-	-	5	0.01	1015	0.13
Czech and Slovak	10	0.06	-	-	35	0.09	1420	0.30	20	0.07	180	0.19	5	0.03	60	0.10	1730	0.23
Finnish	5	0.03	-	-	20	0.05	335	0.07	-	-	125	0.14	-	-	20	0.03	505	0.07
German	1060	6.08	340	1.84	1025	2.43	18325	3.88	335	1.20	12865	14.16	130	0.80	1370	2.23	35450	4.75
Hungarian	15	0.08	15	0.08	55	0.13	1885	0.40	-	-	105	0.12	5	0.03	105	0.17	2185	0.29
Italian	45	0.26	35	0.19	230	0.54	14680	3.11	55	0.20	635	0.70	35	0.21	570	0.93	16285	2.18
Jewish	-	-	10	0.05	145	0.34	7150	1.52	40	0.14	125	0.14	5	0.03	265	0.43	7740	1.04
Netherlands	1875	10.75	495	2.68	640	1.51	7740	1.64	75	0.27	1250	1.37	260	1.60	1520	2.48	13855	1.86
Polish	40	0.23	35	0.19	250	0.59	5235	1.11	50	0.18	6505	7.16	20	0.12	255	0.42	12390	1.66
Russian	-	-	5	0.03	30	0.07	765	0.16	10	0.04	70	0.08	-	-	10	0.02	890	0.12
Scandinavian[8]	85	0.49	40	0.22	165	0.39	3650	0.77	45	0.16	350	0.38	40	0.25	145	0.24	4520	0.60
Ukrainian	10	0.06	75	0.41	165	0.39	5280	1.12	45	0.16	470	0.52	-	-	150	0.24	6195	0.83
Asiatic Origins																		
Chinese	20	0.11	-	-	125	0.30	2910	0.62	5	0.02	150	0.17	-	-	235	0.38	3445	0.46
Japanese	-	-	-	-	5	0.01	375	0.08	-	-	20	0.02	-	-	30	0.05	430	0.06
Other																		
Native Indian	10	0.06	35	0.19	100	0.24	1030	0.22	45	0.16	575	0.63	5	0.03	655	1.07	2455	0.33
Negro	-	-	-	-	-	-	835	0.18	-	-	45	0.05	-	-	-	-	880	0.12
West Indian	-	-	15	0.08	10	0.02	665	0.14	-	-	30	0.03	-	-	10	0.02	730	0.10
Other and not stated	195	1.12	110	0.59	620	1.47	16330	3.46	225	0.81	990	1.09	15	0.09	530	0.86	19015	2.55
Total	17445	100.00	18480	100.00	42260	100.00	471930	100.00	27845	100.00	90870	100.00	16295	100.00	61315	100.00	746440	100.00

Table 4.9 (cont'd)

1. Includes Patricia Portion.
2. District Municipality of Muskoka, formerly the District of Muskoka.
3. Regional Municipality of Niagara, formerly Lincoln and Welland Counties.
4. Municipality of Metropolitan Toronto, formerly a part of York County.
5. Regional Municipality of York, formerly a part of York County.
6. Regional Municipality of Ottawa-Carleton, formerly Carleton County and Cumberland Township in Russell County.
7. Includes English, Irish, Scottish and Welsh.
8. Includes Danish, Icelandic, Norwegian and Swedish.

Source: Statistics Canada, 1971 Census of Canada, Population Ethnic Groups, Bulletin 1.3-2 (Ottawa: Information Canada, 1973), Cat. 92-723, Table 4.

Chapter Five
Conclusions: Looking into the Future

Introduction

There is some satisfaction to be gained from merely understanding what has happened and what is going on at the present. However, since educators must make plans for the future as well, it is considerably more useful if we are able to apply our present knowledge to estimating future needs. From the information concerning patterns and trends in fertility, mortality, and migration which has been presented in earlier chapters, we have made some assumptions about future trends in the population components at the county, district, and regional area levels and developed programs for projecting Ontario population. The resulting projections -- by single years of age for counties, districts, regional areas, and education regions, and for Ontario as a whole -- are given in Section C of this report.

The present chapter considers some of the main characteristics of the projections, particularly the trends in total population and in population of school age in Ontario and across the education regions.[1] The expected changes in those age groups are indicated in Figures 5A and 5B for all Ontario; those for the education regions are shown in Figures 5C through 5T. Data on expected annual and intercensal changes for those age groups in Ontario are given in Tables 5.0 through 5.3; changes for counties, districts, regional areas, and education regions over future census periods are given in Tables 5.4 through 5.21.

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[1] The approach employed in this chapter, and particularly Figures 5A through 5T, follows that used in a number of studies by Zoltan Zsigmond using population projections from Statistics Canada. The present report differs from Zsigmond's analysis in the assumptions built into the population projections, the time frame, and, of course, the geographic area to which data apply.

Since the credibility of the projections depends upon the validity of the basic assumptions, it may be useful to outline the basic assumptions respecting fertility, mortality, and migration. The methodology is explained in detail in Section B.

Basic Assumptions for the Projections

The assumptions about future trends in fertility were made after examining the pattern of fertility rates in areas within economic regions. Economic regions were used for this purpose because of the numerous studies which have indicated a negative relationship between income and fertility; while a similar relationship is likely to exist in education regions, it is less useful since greater heterogeneity of incomes is likely to occur when areas are grouped into an education region framework.

Hypotheses were developed about future trends for counties, districts, and regional areas within economic regions on the basis of rates of change over recent intercensal periods. These hypotheses were then translated into expected levels of age-specific fertility in counties, districts, and regional areas by 1986, and the change over the number of years involved was determined by computer calculation. Where it was considered that fertility rates would become minimal by 1986, as for women over 34 or under 20, the lowest rate for any county, district, or regional area in the economic region in 1971 was generally used as the expected level to be reached by all parts of that region by 1986; where it was expected the rates would be lowered, but not so drastically -- as for fertility of women aged 20 to 34 -- the age-specific fertility rates for women in that age group were expected to approximate the 1971 regional level by 1986 for parts of the region with rates above the regional rate in 1971; where rates were already lower, they were projected as continuing at those levels. This method of estimation made it possible to allow for some continuing regional differentials in future years, at the same time as age-specific fertility levels became increasingly more uniform across the province.

The resulting assumptions for fertility can be summarized by the level of the total fertility rate (as defined in Chapter One). The level of 2,217.51 births per 1,000 women which held across Ontario in 1971 was expected to drop to 1,936.33 by 1986, a decline of 12.68%. On a per woman basis, where the average woman in Ontario bore 2.22 children in 1971, she was expected to bear only 1.94 children in 1986.

Mortality declines were assumed to be on the order of 2.25% per annum, differentially distributed with respect to age and sex as well as by county, district, regional area, and education region. After examining the trends of age-specific death rates across economic regions from 1956 to 1971 (again because there is evidence of a negative relationship between mortality and income levels), we made the assumption that over the period 1971-1986 mortality for ages 1 to 44 would decline at two-thirds the rate for the earlier period, and that for ages 45 and over it would decline at one-third the rate. Infant mortality was determined by rank-ordering the county, district, and regional area rates in 1971 into four groups and allocating differential rates of decline for the period 1971-1986 amounting to 75%, 65%, 55%, and 45% for males, and 80%, 70%, 60%, and 50% for females, respectively, for the four groups. The determination of the rate of decline in infant mortality was made not so much on the basis of past rates of decline as on the expectation that by 1991 the best levels of infant mortality in Ontario would approximately equal the 1971 best levels in other advanced countries.

Whereas the fertility and mortality assumptions outlined above were used for both sets of projections developed for this study, the assumptions respecting migration differed. One projection incorporated the assumption that migration would be consistent with migration trends over census periods from 1951 to 1971, when the Ontario economy was relatively prosperous and population mobility was quite high. The other projection assumed that, while migration would occur, there would be no net gain or loss of population from it. The second assumption is compatible with expectations for migration in a period of economic recession when employment opportunities are scarce.

For the high projection, the migration input involved a matrix of log migration ratio which had one row for each sex and year for each county, district, and regional area, and one column for each age group over 5 years of age. Through a mathematical smoothing process, achieved by approximation with the least-squares best rank 3 matrix, simple summary values for each migration set were extrapolated to estimate scores for successive time points. Reconversion from log migration ratios provided estimates of net migration as future time points by age and sex and by county, district, and regional area. For the low projection, since it was assumed that population change resulted solely from the balance between fertility and mortality, there was no migration input.

Because projected population levels for the province as a whole were greater under the first set of migration assumptions, for convenience we have termed the result the high projection; the other projection has been termed the low projection. These terms are not necessarily consistent with expectations in subareas where, for instance, migration may sometimes result in population decline rather than population growth, depending upon the direction of the migration stream.

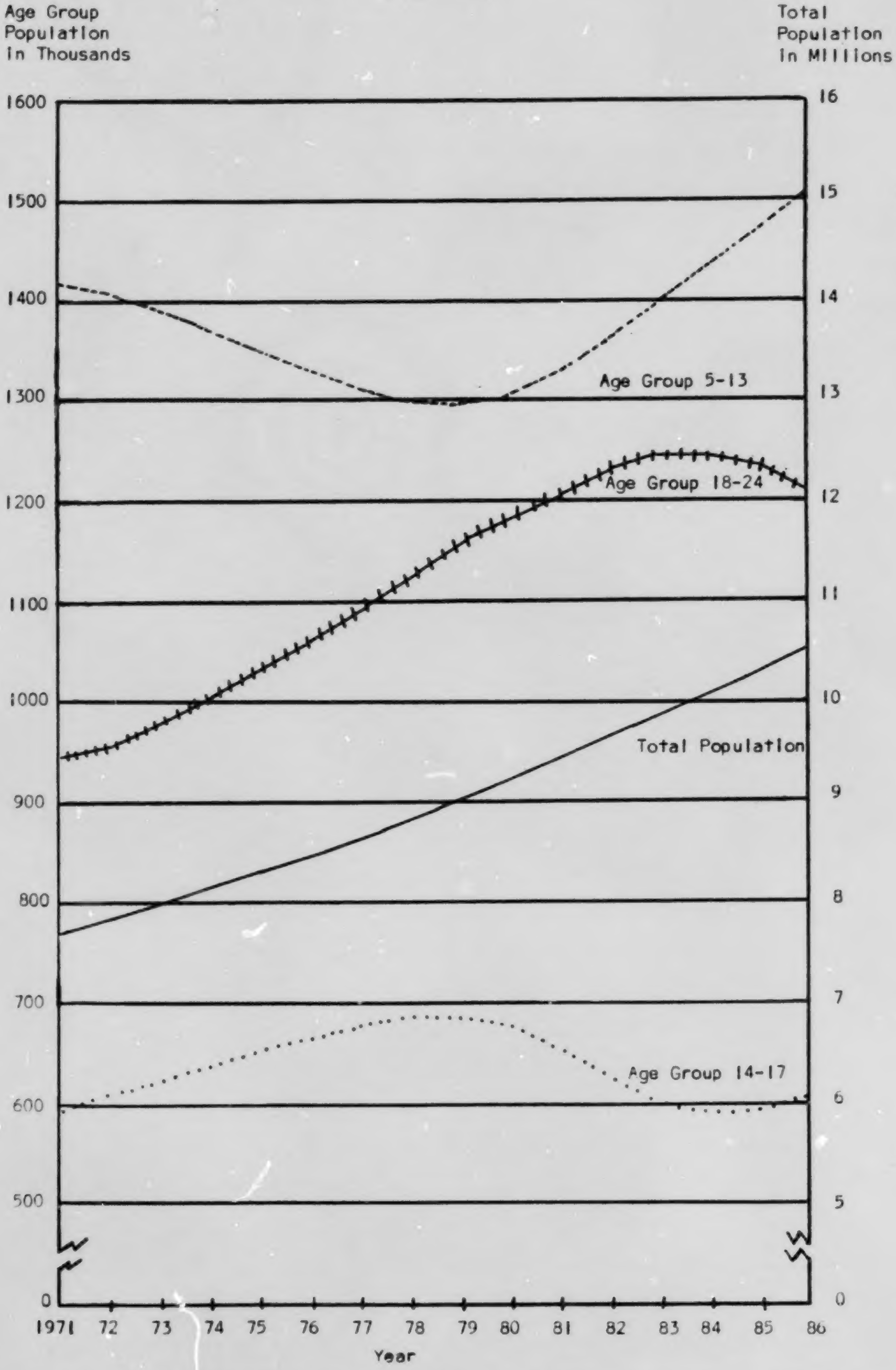
As will become evident from the summary of the projections and their comparison with 1976 Census findings, the future population of the various counties, districts, and regional areas of Ontario is expected to fall between the high and low projections, except where certain influences cannot be accurately foretold.

Summary of the Projections and Comparison with 1976 Census Data

Figures 5A and 5B indicate the expected changes in total Ontario population based upon the high and low projections respectively. In both cases total population is measured in millions against the vertical axis on the right-hand side of the chart, and selected age groups of the population from which educational enrolment is generally recruited are measured in thousands against the vertical axis on the left-hand side. Tables 5.0 through 5.3 present the yearly data and expected intercensal change for these age groups for both the high and low projections.

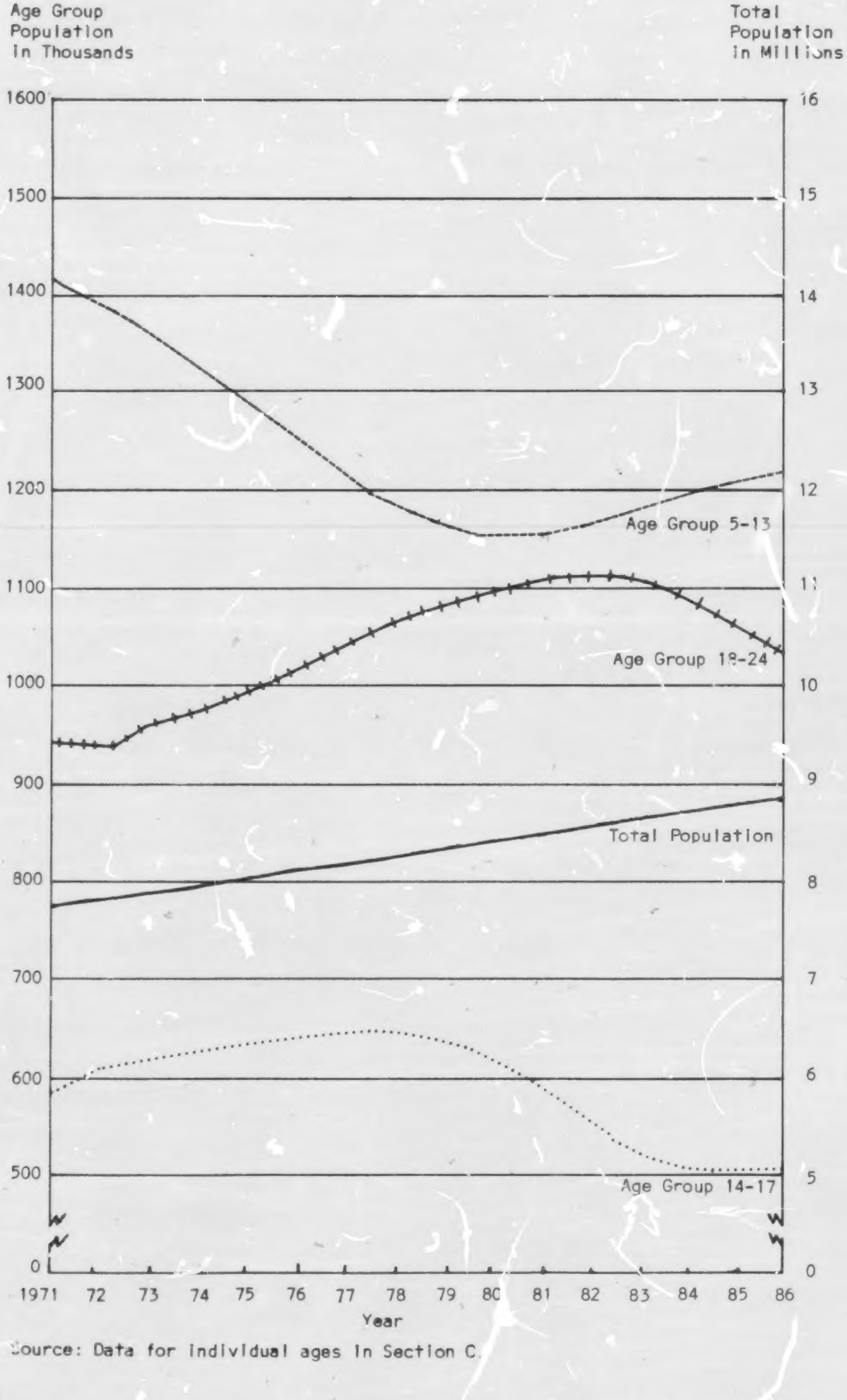
According to the high projection, total Ontario population was expected to increase from 7.7 million in 1971 to almost 8.5 million in 1976; by 1981 it was projected to reach almost 9.5 million and by 1986, 10.6 million. The low projection indicated a total Ontario population of 8.1 million in 1976, 8.4 million in 1981, and 8.8 million in 1986. Census data for 1976, which became available as this publication was going to press, recorded about 8.3 million persons in Ontario, which was about half-way between our high and low projections for that year. With respect to the age groups selected for study in relation to education, the 1976 Census data indicated a total of approximately 130,000 in the 5 to 13 age group, about midway between the high projection of 133,000 and the low projection of 126,000. Of the total population counted in the 1976 Census, 15.76% were in this 5 to 13 age group. For the 14 to 17 age group, the 1976 Census reported 658,000, compared to the high projection of 664,000 and the low projection of 639,000. This constituted about 7.97% of the total population. The Census counted 1,058,000

FIGURE 5A: SELECTED AGE GROUP POPULATION APPROXIMATELY RELEVANT TO SCHOOL ENROLMENT, ONTARIO, 1971-1986: HIGH PROJECTION



Source: Data for individual ages in Section C.

FIGURE 5B: SELECTED AGE GROUP POPULATION APPROXIMATELY RELEVANT TO SCHOOL ENROLMENT, ONTARIO, 1971-1986: LOW PROJECTION



Source: Data for individual ages in Section C.

persons aged 18 to 24 in 1976, where the high projection had indicated 1,064,000 and the low projection was for 1,017,000 in the age group. Persons in this age group accounted for 12.80% of the population.

According to both high and low projections, the three age groups which are most relevant to educational enrolments are going to change importantly over the period. The age group 5 to 13, which consisted of almost 1.4 million persons in 1971, will experience a decline of 120,000 to 260,000 between 1979 and 1981, depending upon which projection is used. Actual decline between 1971 and 1976 was 8.05%; the proportionate decline may be as much as 8.12% between 1976 and 1981. Thereafter there is likely to be an increase, so that by 1984 the numbers in that age group may have surpassed the numbers in 1971 (high projection), or at least be almost back to the 1978 level (low projection); after 1984 this age group is likely to increase between 27,000 and 79,000 by 1986. The larger size of the group by 1986 will likely reflect the substantial number of females in the prime reproductive ages giving birth, rather than high levels of age-specific fertility.

Age group 14 to 17 is expected to increase in size from slightly less than 600,000 persons in 1971 to between 645,000 and 686,000 in 1978. Census records indicated that over the years between 1971 and 1976 the age group had actually increased by 63,630, or 10.70%. However, by the 1980s the decline in fertility after 1960 will affect the size of this group, reducing it to between 501,000 and 590,000 by 1984 or 1985. After that the numbers will grow, although possibly not until 1986, if the low projection proves to be valid.

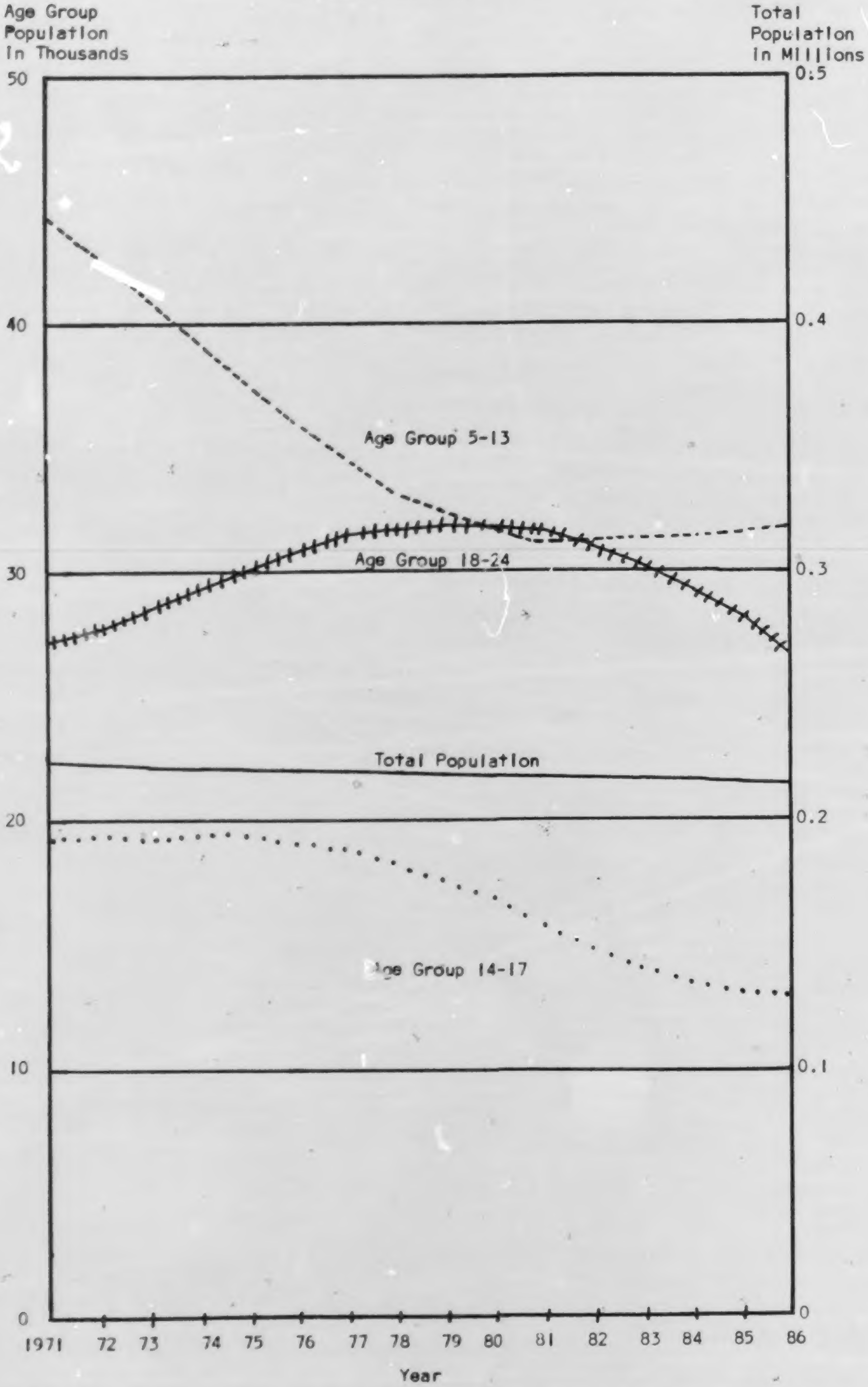
Age group 18 to 24 is likely to increase in numbers for a few years. According to census findings, 111,595 additional persons were in this age group by 1976, representing an increase of 11.79% since the last Census. By 1984 there will probably be a peak of between 1.11 and 1.25 million in the age group, after which numbers will decline. The high projection reflects the possibility of net in-migration, which has enlarged this age group to an important extent in the past but which is influenced by factors such as employment opportunities and federal immigration policy.

Turning to the regional trends, as shown in Figures 5C through 5T and Tables 5.4 through 5.21, under the high projection we expected total population growth to occur throughout all regions except Northwestern Ontario, where population could actually decline by about 9,000 by 1986 if out-migration continues at past levels for that region. The low projection, which assumed no net gain or loss of population through migration, indicated that under those conditions there could actually be population growth of about 12% in the Northwestern Region between 1971 and 1986 and that all census units in the region would gain, instead of lose, population. However, under the assumptions of both projections, substantial declines would still occur for the 5 to 13 age group until 1981 in Kenora and in Thunder Bay, and until 1982 in Rainy River; and the other age groups considered would fall off very substantially in Rainy River and Thunder Bay by 1986, with a smaller reduction in Kenora.

1976 Census results for the Northwestern Region yield some interesting insights. Of particular interest is the number recorded in the age group 5 to 13, which exceeded estimates for that age group made by both projections. This situation means that subsequent age groups will tend to be enlarged to 1986 unless migration out of the area revives to its earlier levels. Comparing population under 1 year of age in 1976 with that in 1971 reveals a decline of 9% across the region, so that fertility has probably gone down. However, where the projections had suggested that the age group 5 to 13 would undergo a decline of between 6,700 and 13,000 persons by 1981, it now appears that fertility has not fallen as much as was expected and that the less steep decline may be more representative for the region. Consequently, numbers in the age group 5 to 13 could remain fairly stable until 1986. However, the 14 to 17 and 18 to 24 age groups will probably decline by 10% or more because of earlier fertility declines. All the census results agree more closely with our low projection for the Northwestern Region, suggesting that both fertility and out-migration, which had drained off a substantial proportion of the population over preceding census intervals, have declined. The closeness of census counts for total population with the totals under the low projection for Kenora and Thunder Bay suggests that out-migration from those areas may have virtually stopped; some continuing loss is indicated for the Rainy River District.

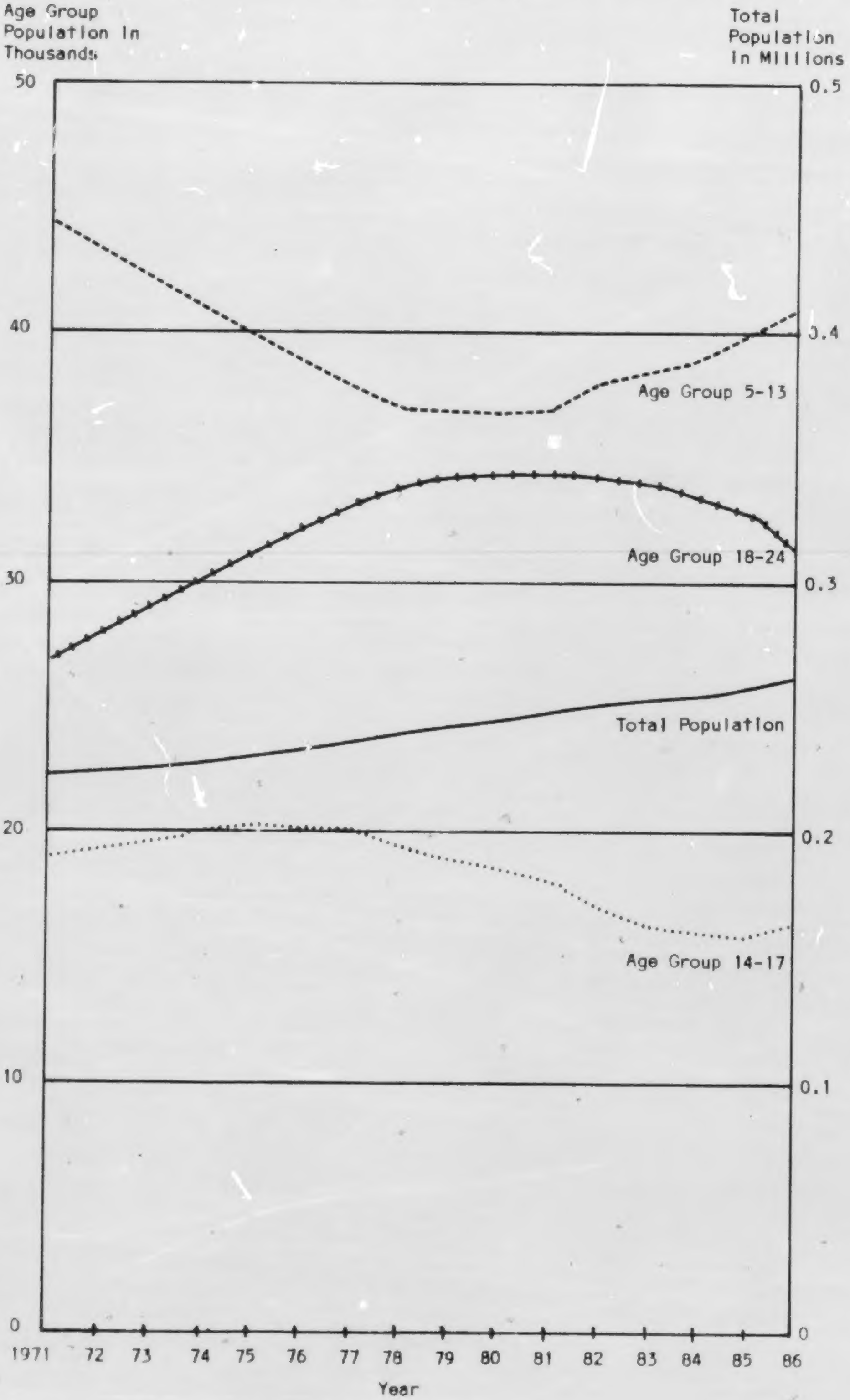
In Midnorthern Ontario our projections indicated that total population would increase gradually: age group 5 to 13 would decline until about 1979, after which it would increase somewhat but would remain below the 1971 level; age group 14 to 17 would increase gradually from the 1971 level until 1978 or 1979, after which it would decline for a few years before levelling off; age group 18 to 24 would increase until 1982 or 1983 and then begin to decline, but would be above the 1971

FIGURE 5C: SELECTED AGE GROUP POPULATION APPROXIMATELY RELEVANT TO SCHOOL ENROLMENT IN THE NORTHWESTERN EDUCATION REGION, 1971-1986: HIGH PROJECTION



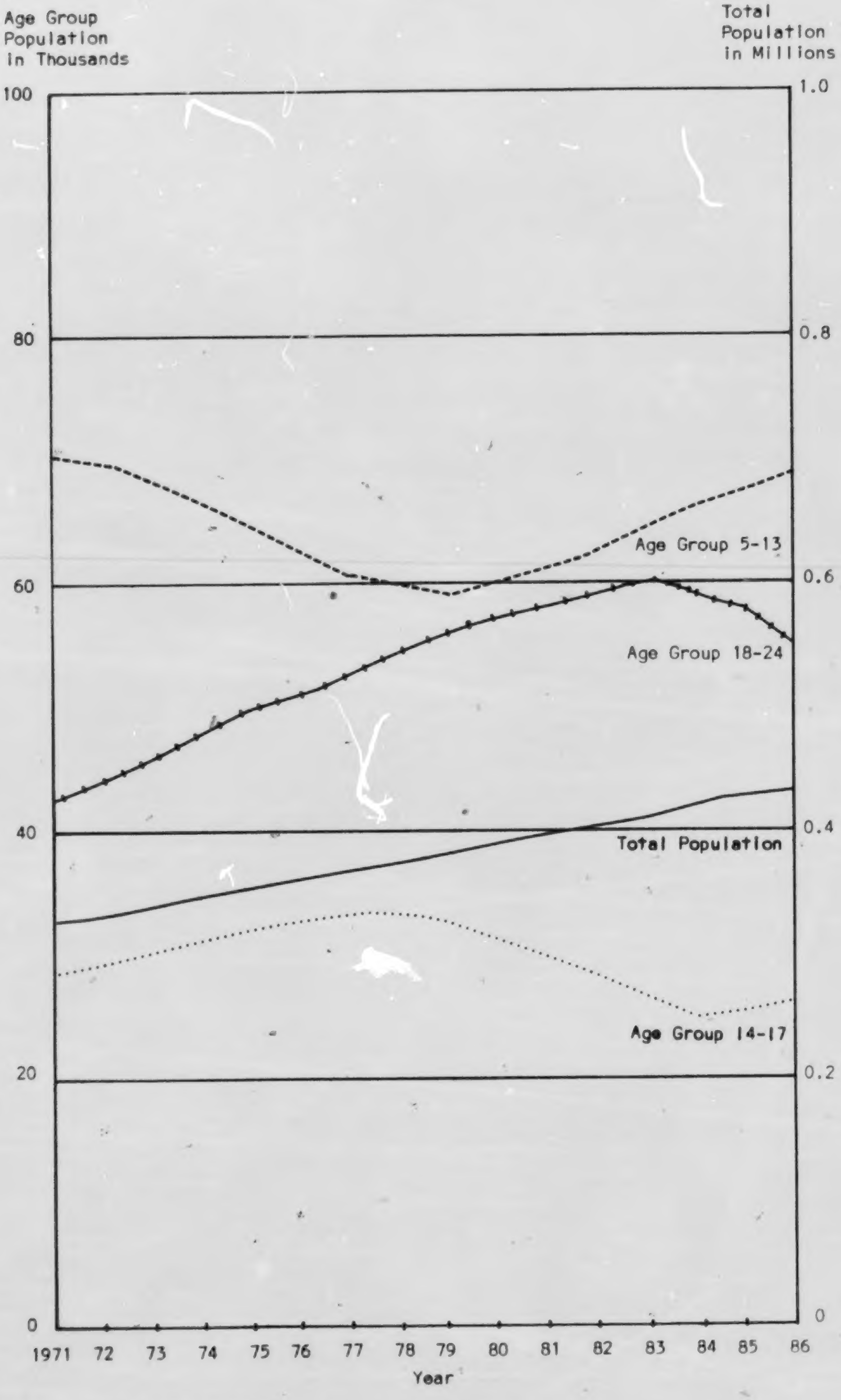
Source: Data for individual ages in Section C.

FIGURE 5D: SELECTED AGE GROUP POPULATION APPROXIMATELY RELEVANT TO SCHOOL ENROLMENT IN THE NORTHWESTERN EDUCATION REGION, 1971-1986: LOW PROJECTION



Source: Data for individual ages in Section C.

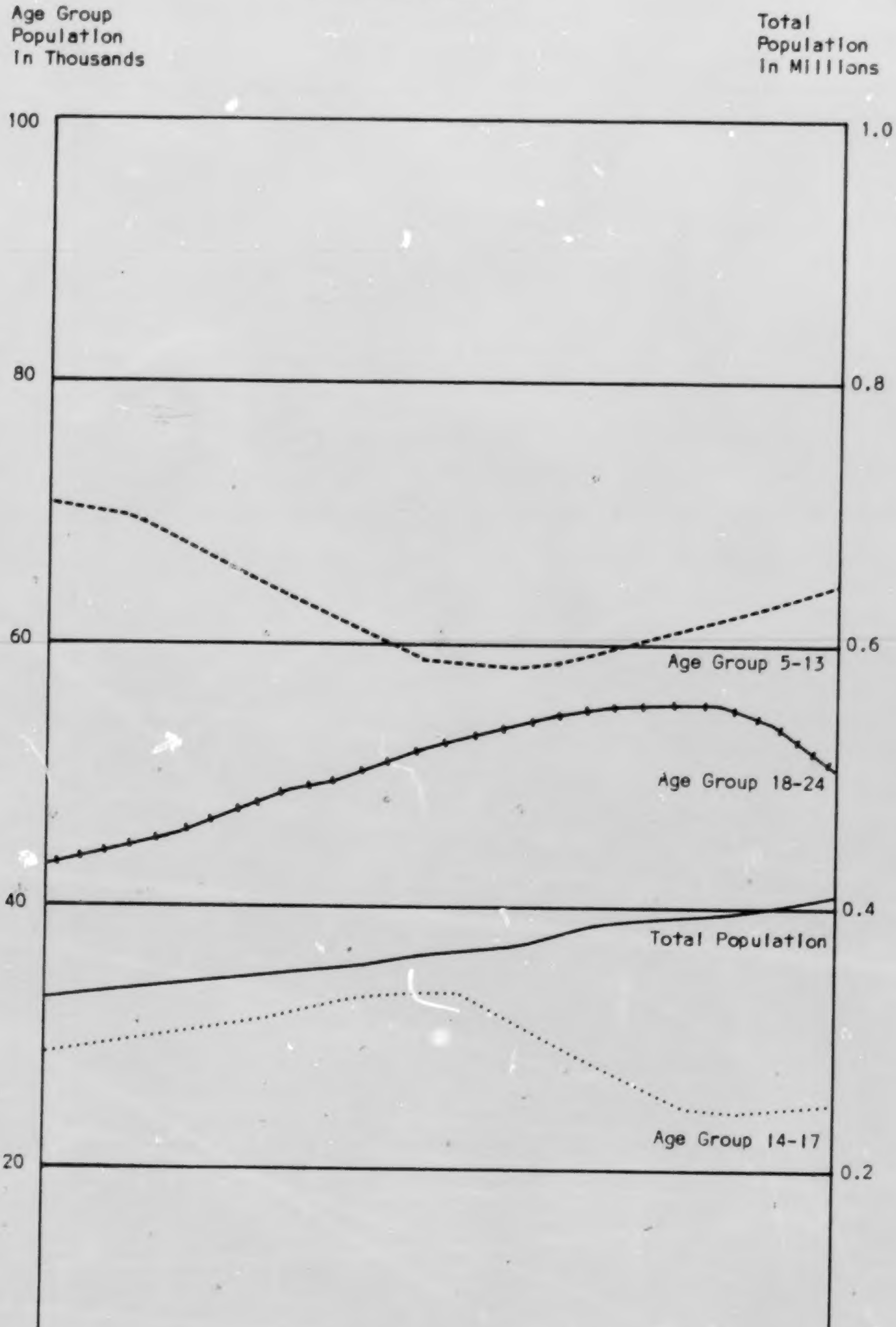
FIGURE 5E: SELECTED AGE GROUP POPULATION APPROXIMATELY RELEVANT TO SCHOOL ENROLMENT IN THE MIDNORTHERN EDUCATION REGION, 1971-1986: HIGH PROJECTION



Source: Data for individual ages in Section C.

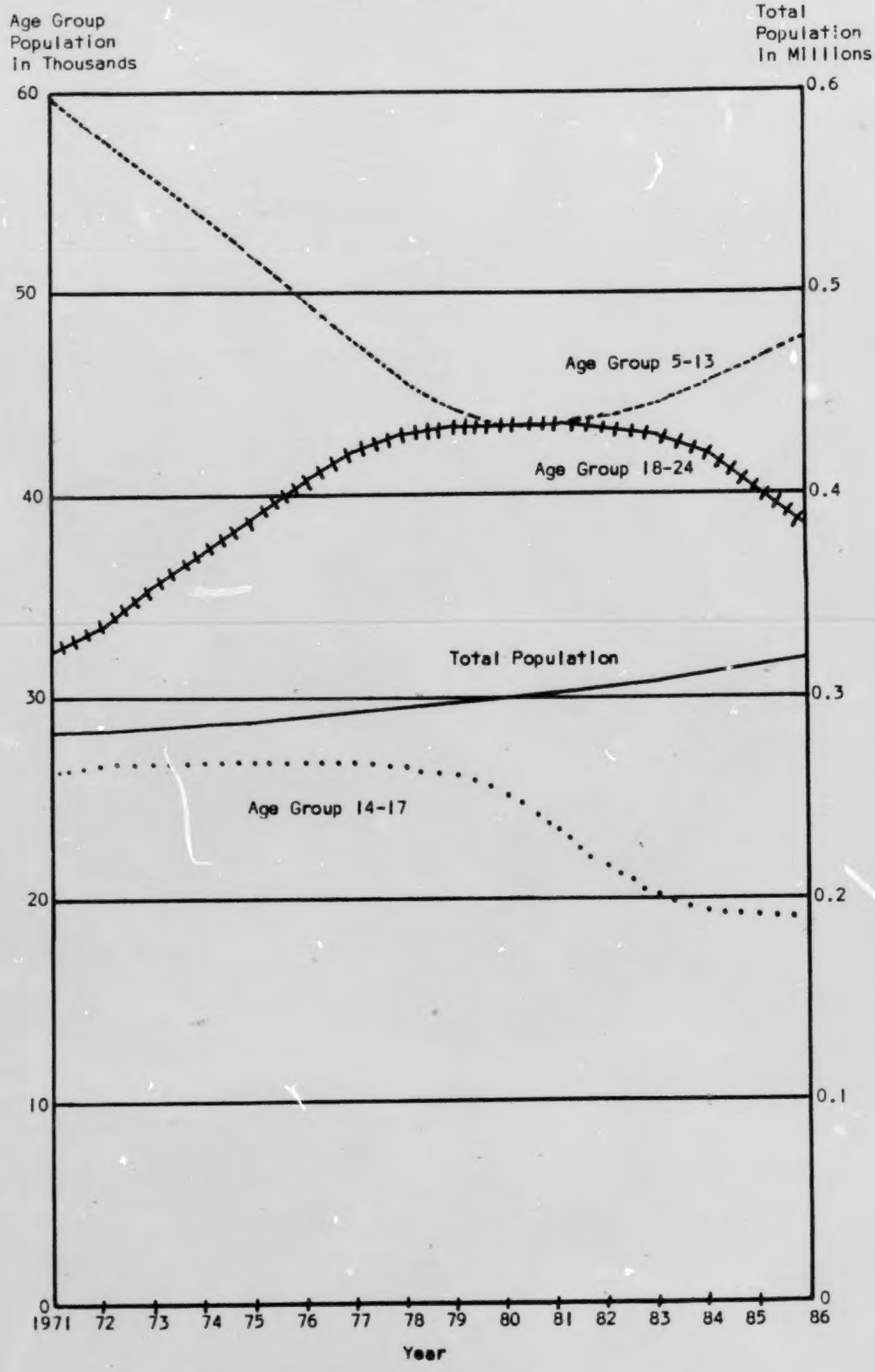
FIGURE 5F: SELECTED AGE GROUP POPULATION APPROXIMATELY RELEVANT TO SCHOOL ENROLMENT IN THE MIDNORTHERN EDUCATION REGION, 1971-1986:

LOW PROJECTION



Source: Data for individual ages in Section C.

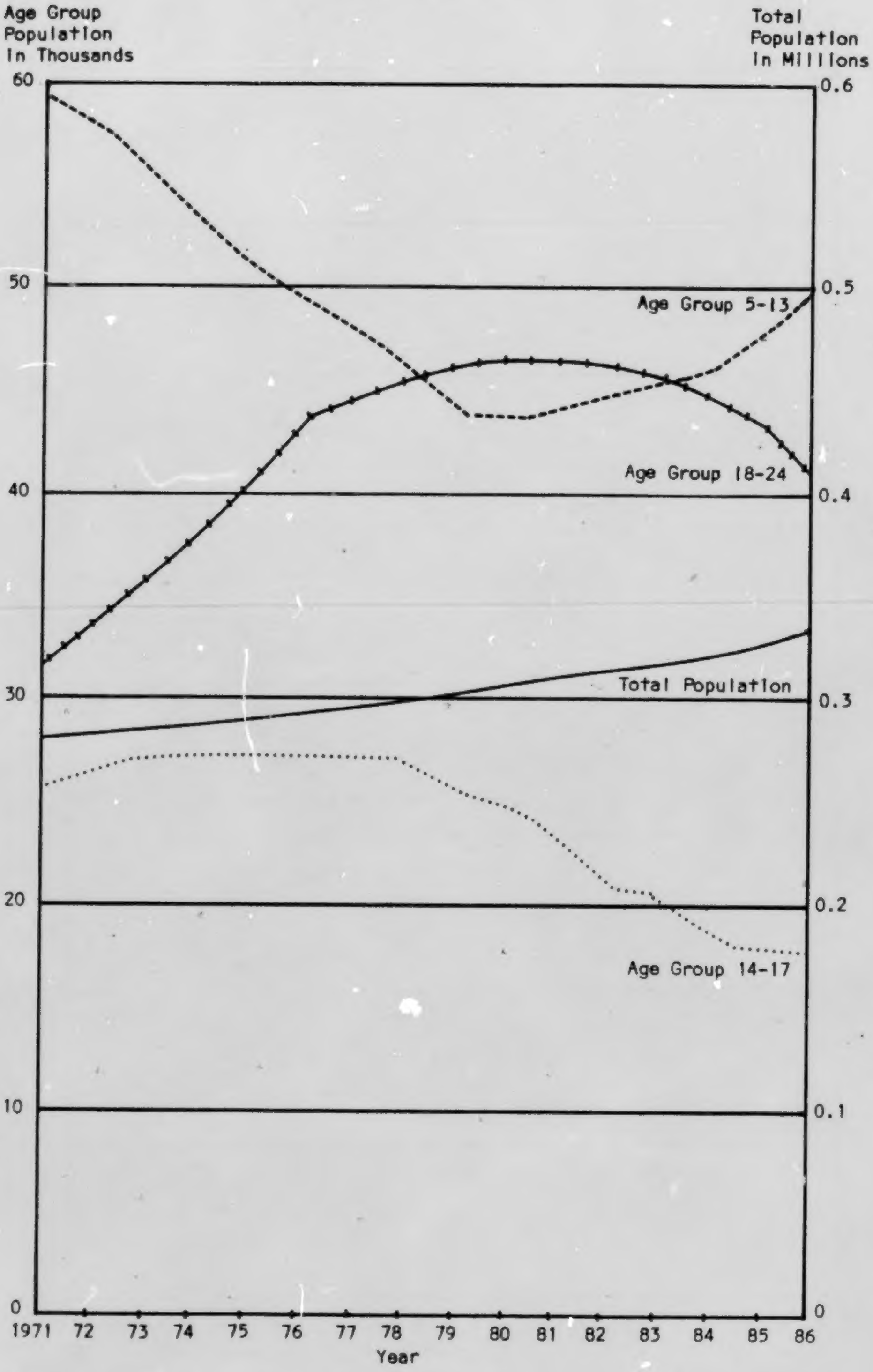
FIGURE 5G: SELECTED AGE GROUP POPULATION APPROXIMATELY RELEVANT TO SCHOOL ENROLMENT IN THE NORTHEASTERN EDUCATION REGION, 1971-1986: HIGH PROJECTION



Source: Data for individual ages in Section C.

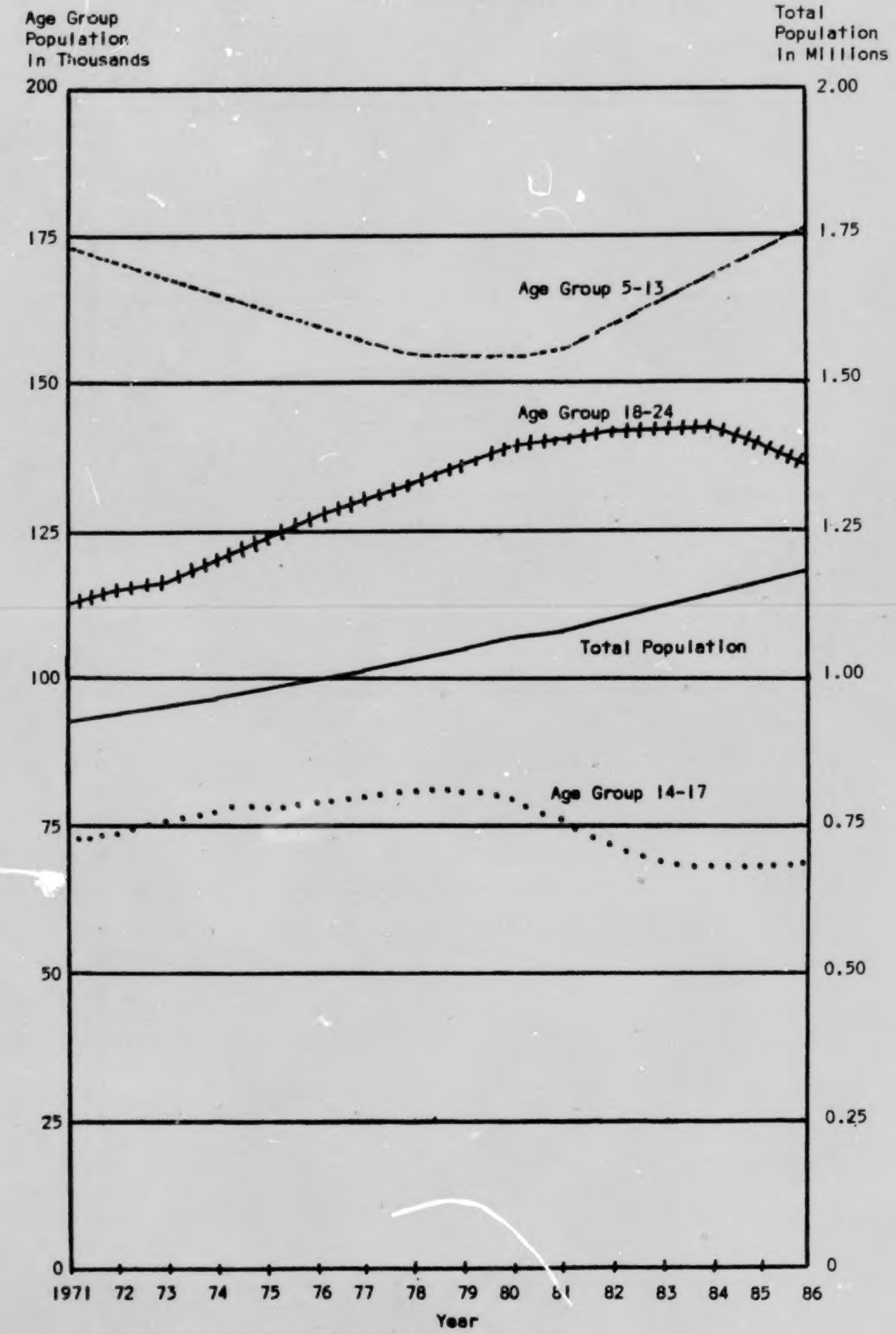
FIGURE 5H: SELECTED AGE GROUP POPULATION APPROXIMATELY RELEVANT TO SCHOOL ENROLMENT IN THE NORTHEASTERN EDUCATION REGION, 1971-1986:

LOW PROJECTION



Source: Data for individual ages in Section C.

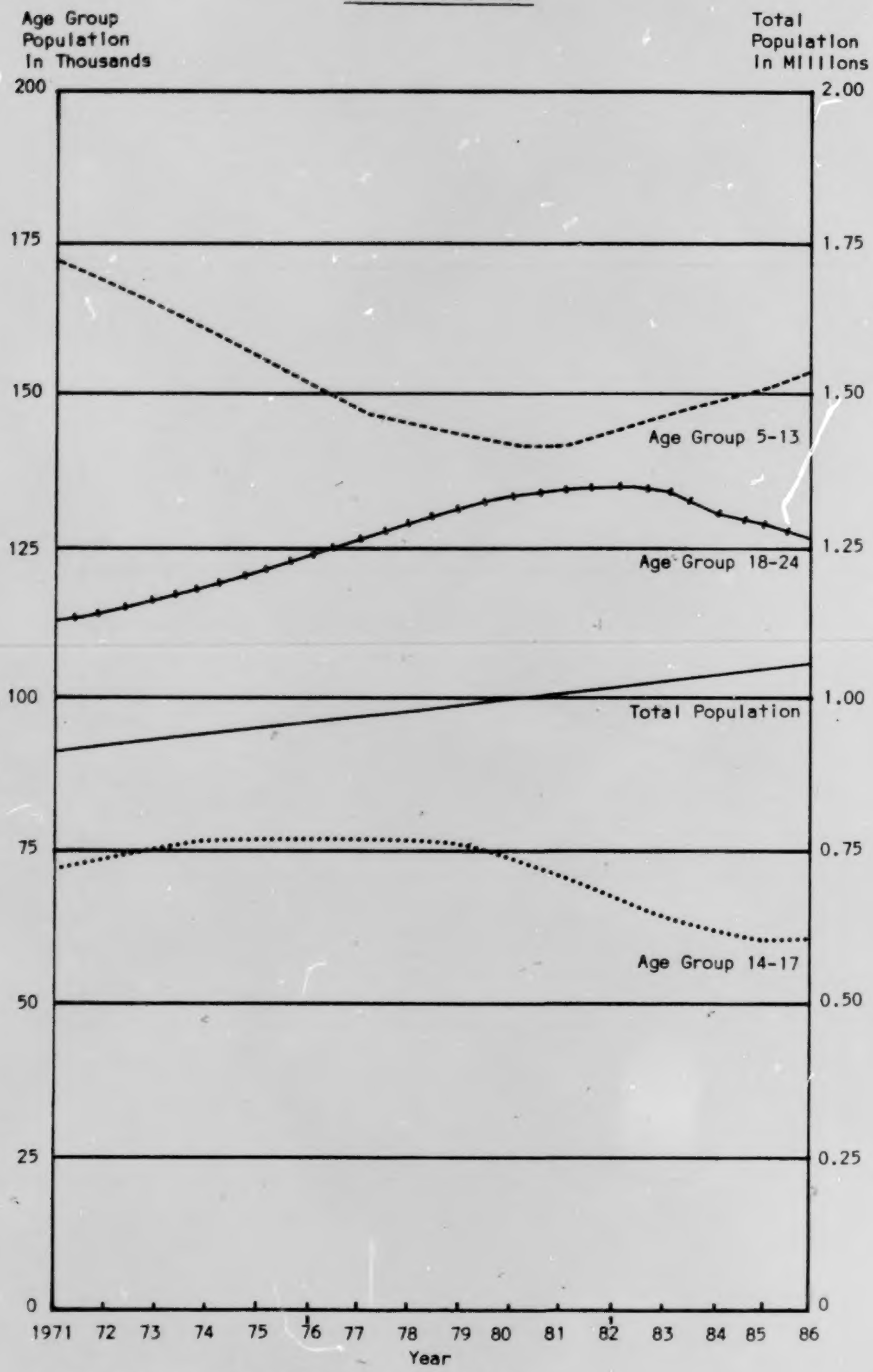
FIGURE 51: SELECTED AGE GROUP POPULATION APPROXIMATELY RELEVANT TO SCHOOL ENROLMENT IN THE WESTERN EDUCATION REGION, 1971-1986: HIGH PROJECTION



Source: Data for individual ages in Section C.

FIGURE 5J: SELECTED AGE GROUP POPULATION APPROXIMATELY RELEVANT TO SCHOOL ENROLMENT IN THE WESTERN EDUCATION REGION, 1971-1986:

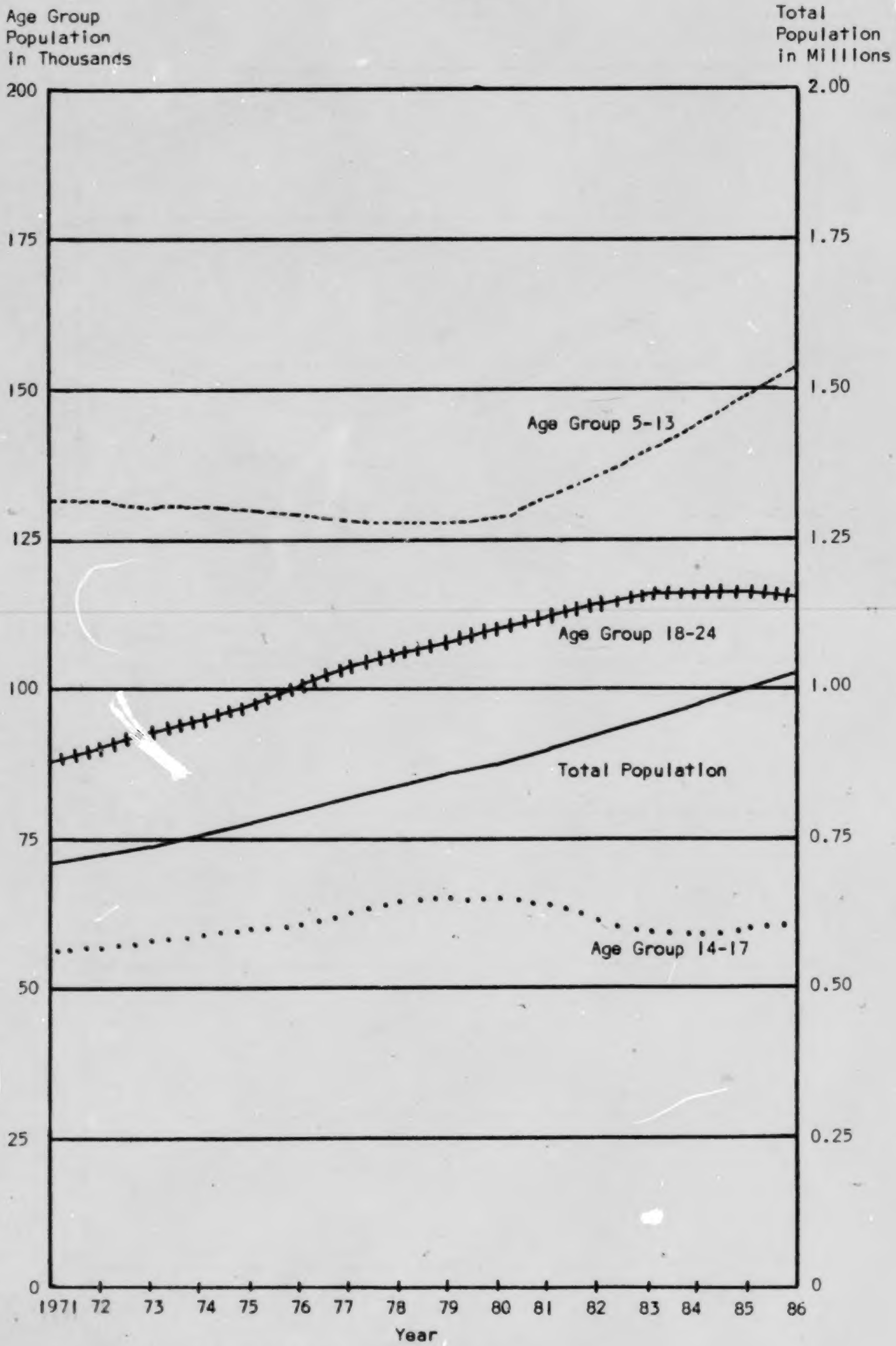
LOW PROJECTION



Source: Data for individual ages in Section C.

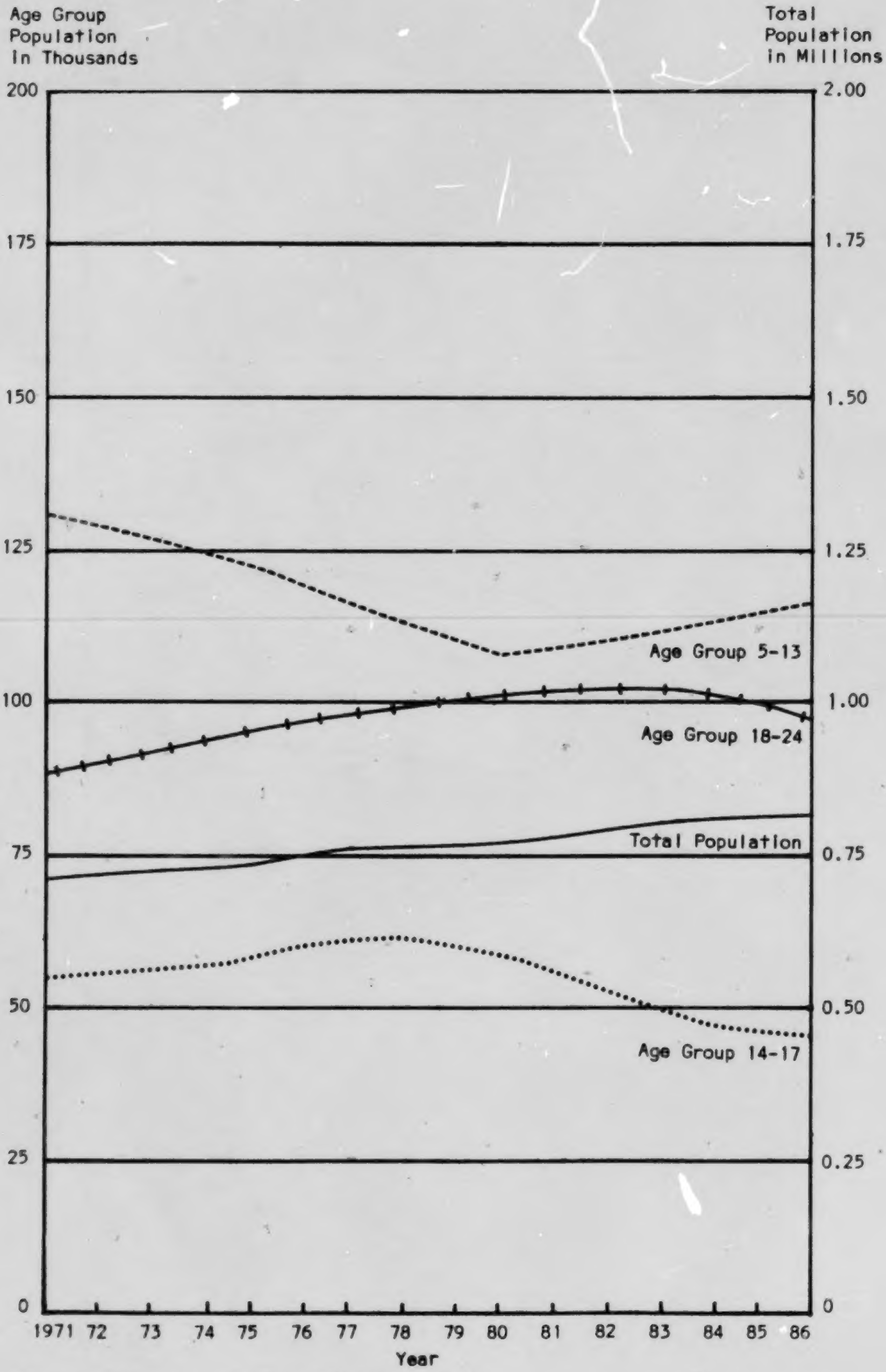
FIGURE 5K: SELECTED AGE GROUP POPULATION APPROXIMATELY RELEVANT TO SCHOOL ENROLMENT IN THE MIDWESTERN EDUCATION REGION, 1971-1986:

HIGH PROJECTION



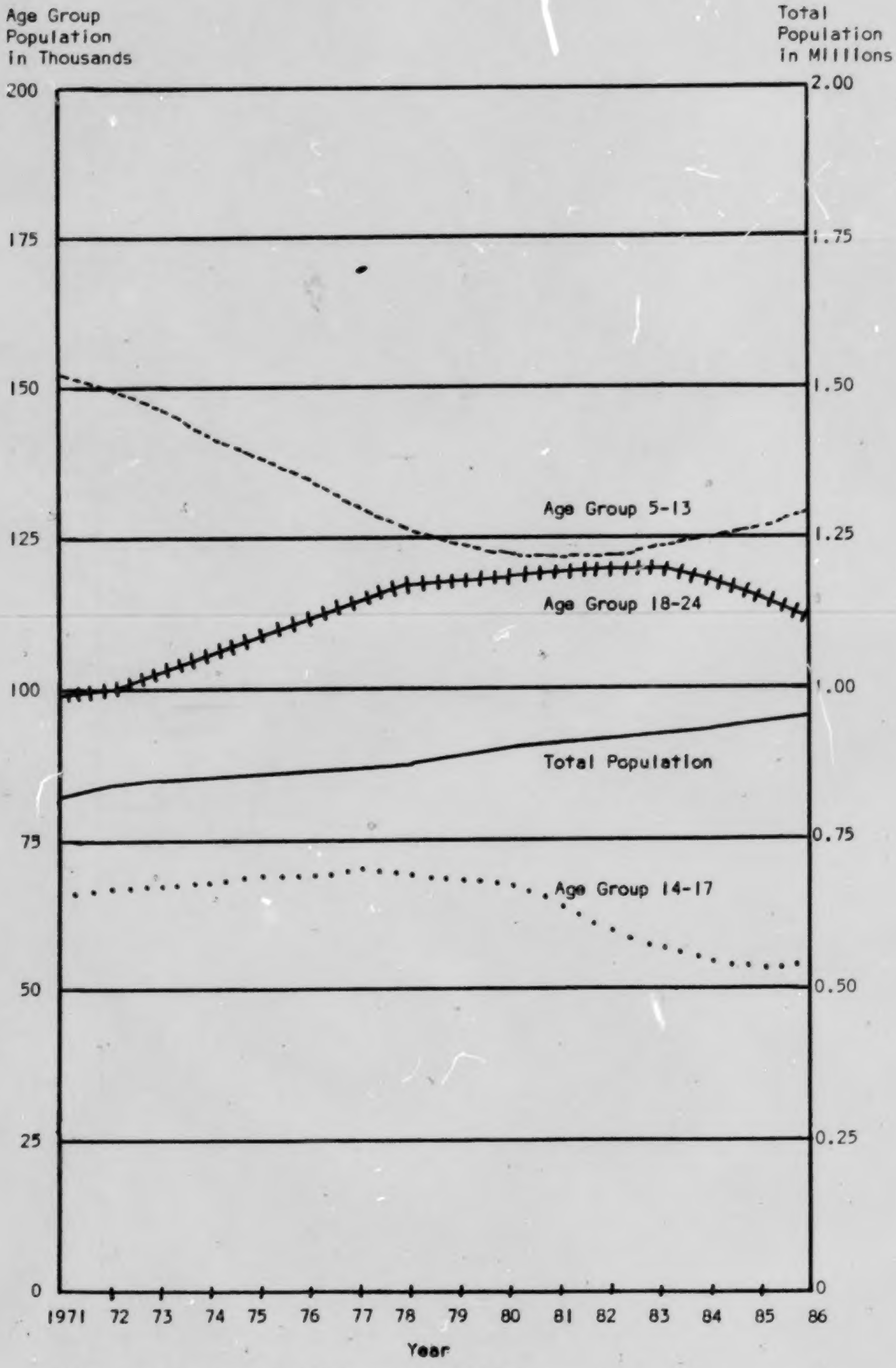
Source: Data for individual ages in Section C.

FIGURE 5L: SELECTED AGE GROUP POPULATION APPROXIMATELY RELEVANT TO SCHOOL ENROLMENT IN THE MIDWESTERN EDUCATION REGION, 1971-1986: LOW PROJECTION



Source: Data for individual ages in Section C.

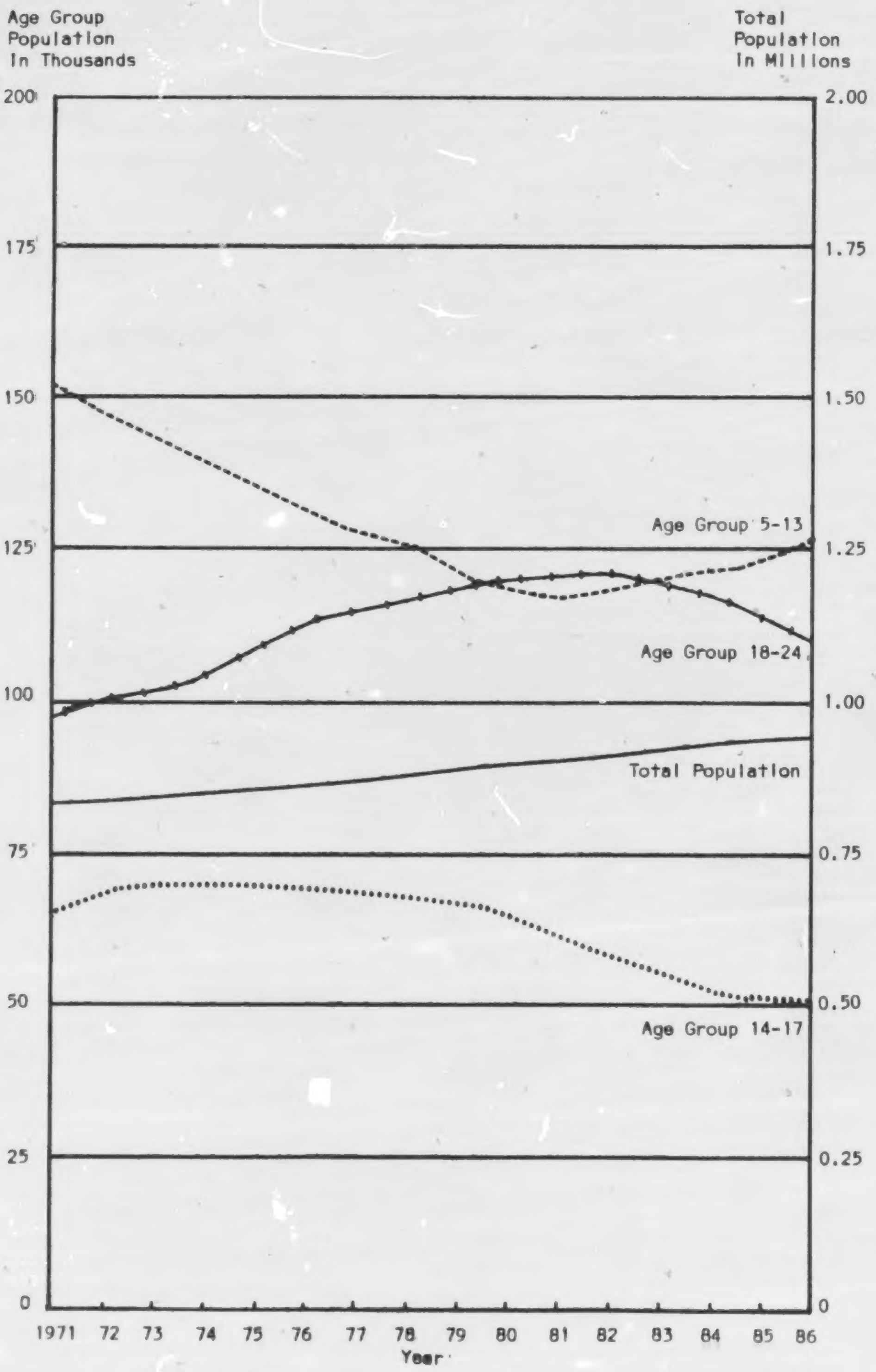
FIGURE 5M: SELECTED AGE GROUP POPULATION APPROXIMATELY RELEVANT TO SCHOOL ENROLMENT IN THE NIAGARA EDUCATION REGION, 1971-1986: HIGH PROJECTION



Source: Data for individual ages in Section C.

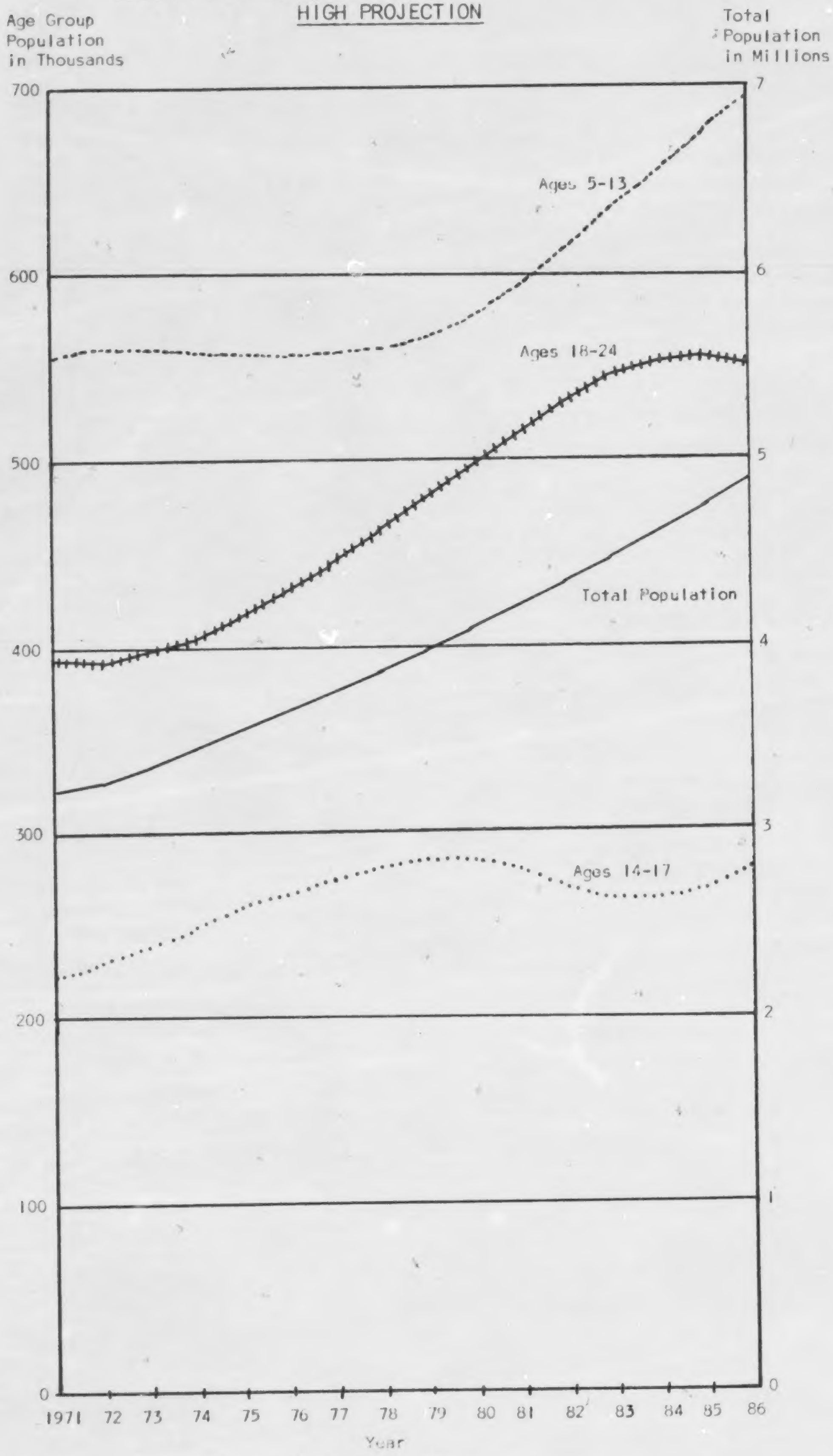
FIGURE 5N: SELECTED AGE GROUP POPULATION APPROXIMATELY RELEVANT TO SCHOOL ENROLMENT IN THE NIAGARA EDUCATION REGION, 1971-1986:

LOW PROJECTION



Source: Data for individual ages in Section C.

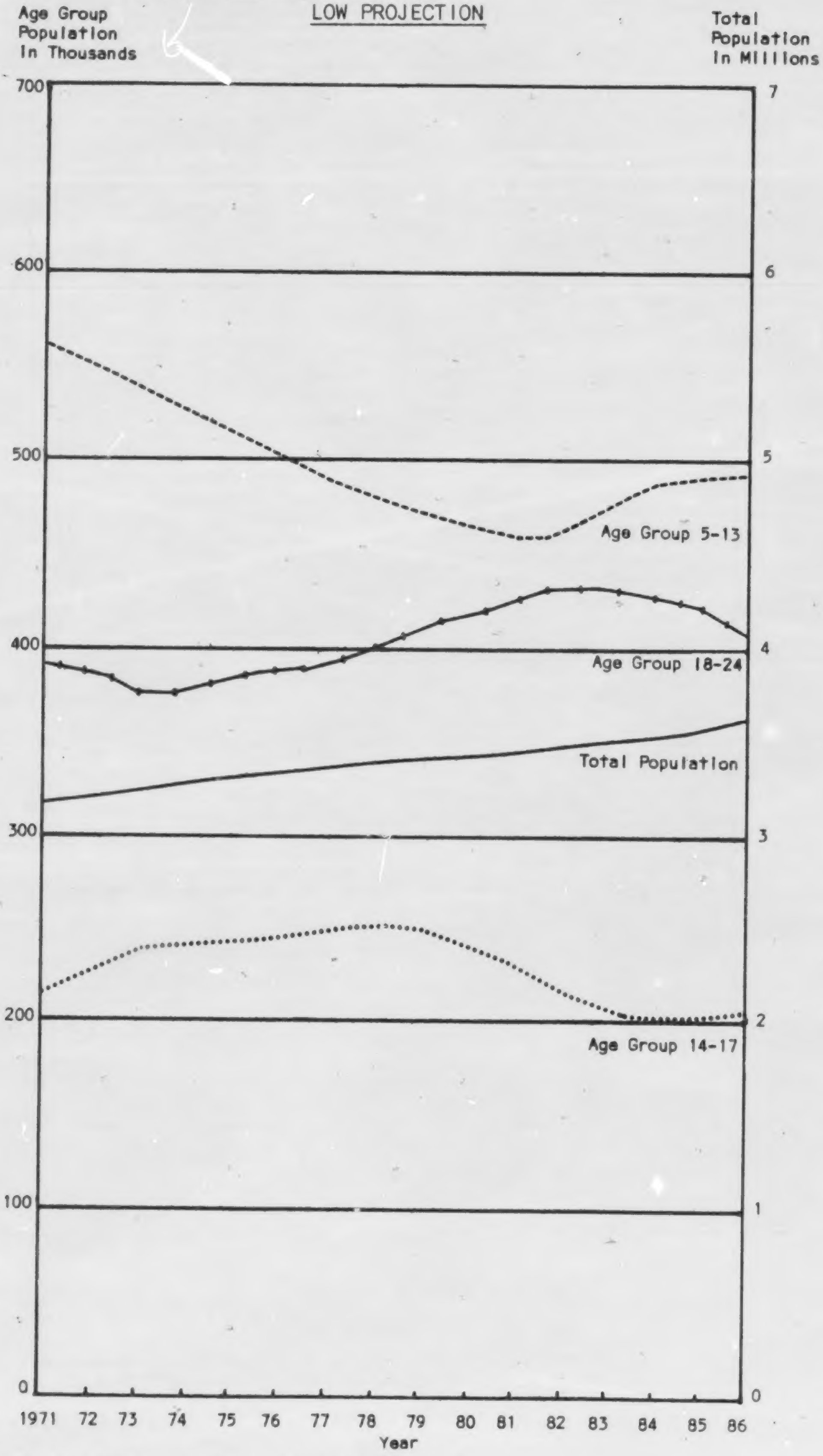
FIGURE 5.0: SELECTED AGE GROUP POPULATION APPROXIMATELY RELEVANT TO SCHOOL ENROLMENT IN THE CENTRAL EDUCATION REGION, 1971-1986: HIGH PROJECTION



Source: Data for individual ages in Section C.

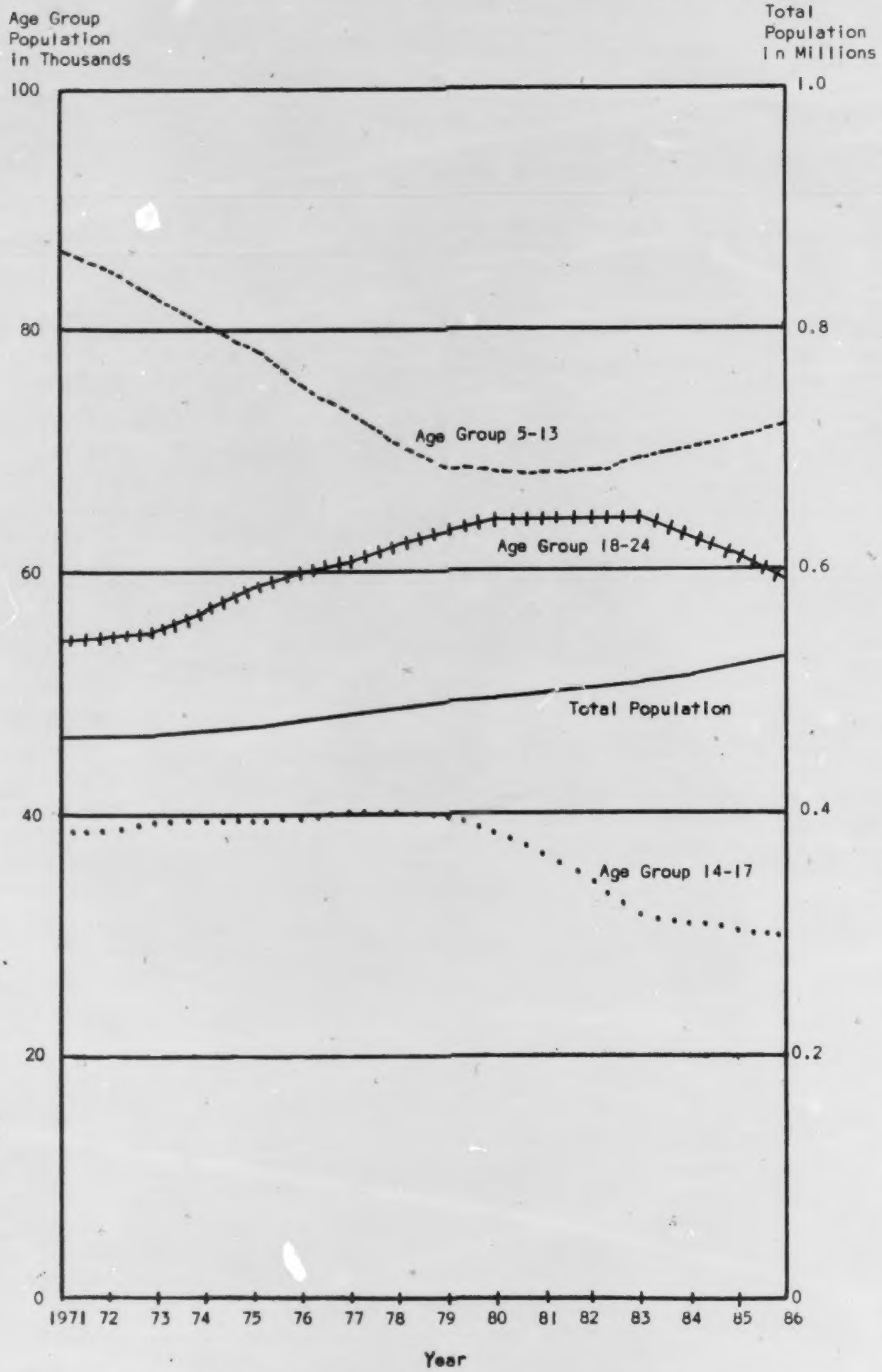
FIGURE 5P: SELECTED AGE GROUP POPULATION APPROXIMATELY RELEVANT TO SCHOOL ENROLMENT IN THE CENTRAL EDUCATION REGION, 1971-1986:

LOW PROJECTION



Source: Data for individual ages in Section C.

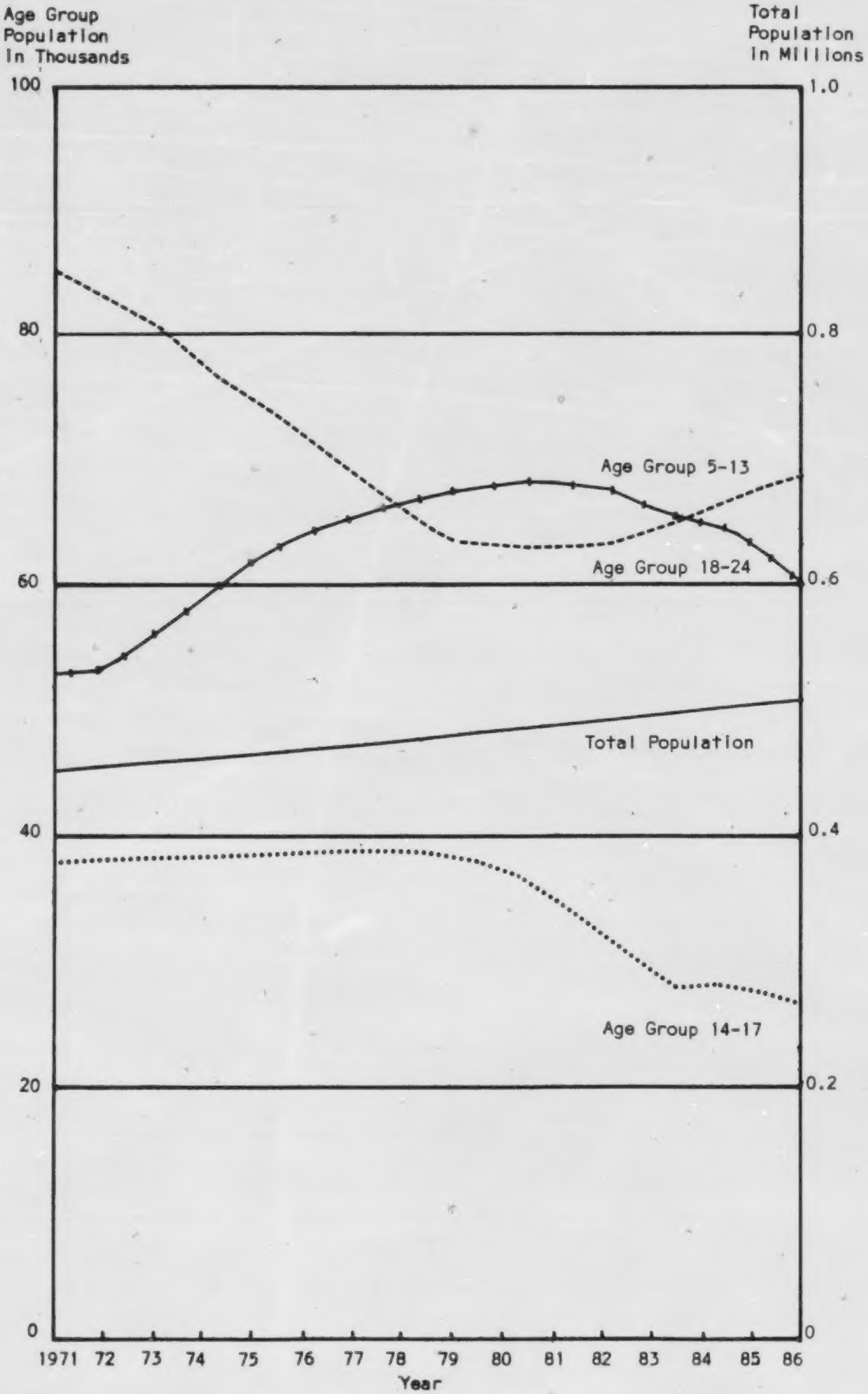
FIGURE 5Q: SELECTED AGE GROUP POPULATION APPROXIMATELY RELEVANT TO SCHOOL ENROLMENT IN THE EASTERN EDUCATION REGION, 1971-1986: HIGH PROJECTION



Source: Data for individual ages in Section C.

FIGURE 5R: SELECTED AGE GROUP POPULATION APPROXIMATELY RELEVANT TO SCHOOL ENROLMENT IN THE EASTERN EDUCATION REGION, 1971-1986:

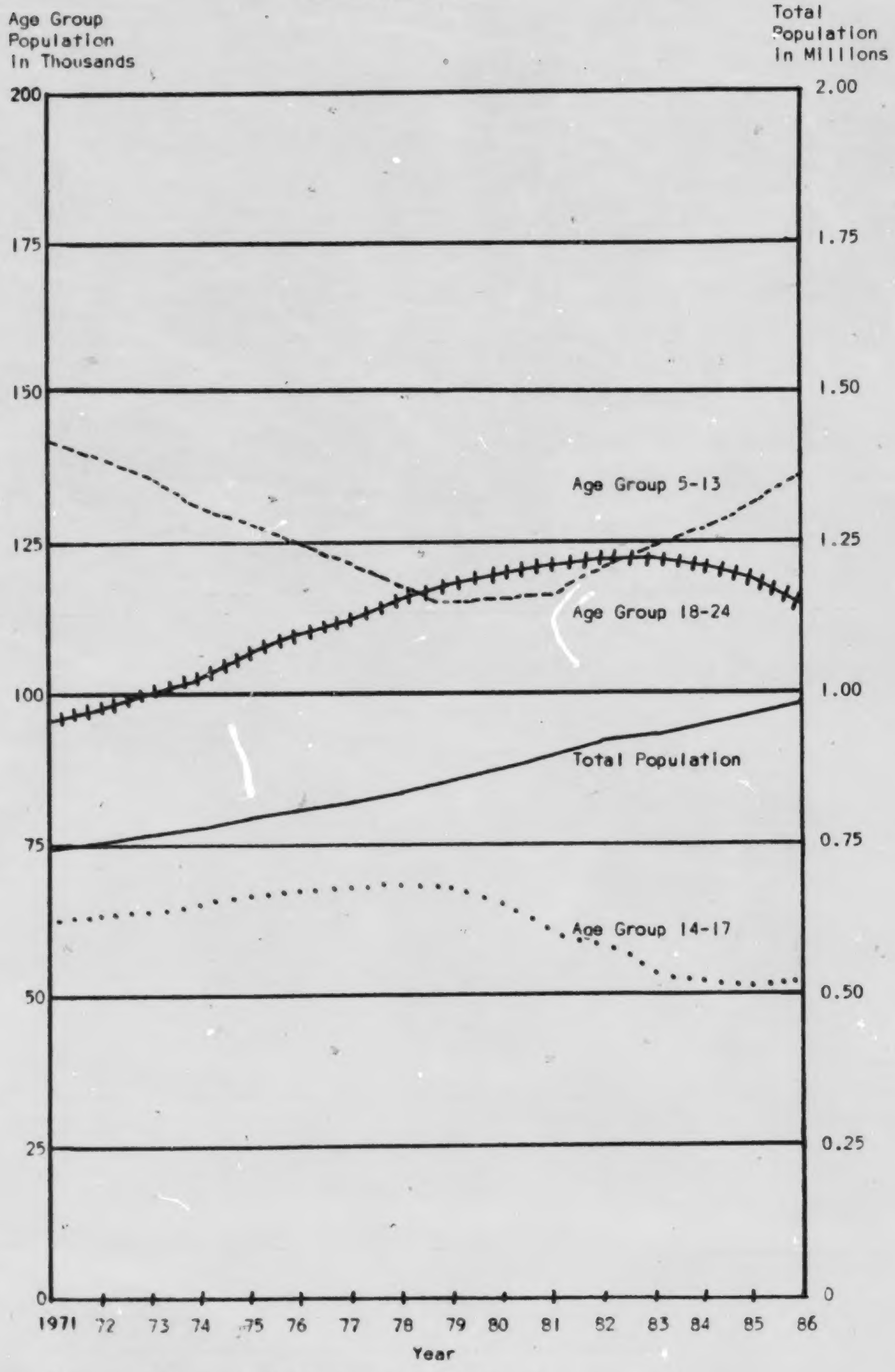
LOW PROJECTION



Source: Data for individual ages in Section C.

FIGURE 5S: SELECTED AGE GROUP POPULATION APPROXIMATELY RELEVANT TO SCHOOL ENROLMENT IN THE OTTAWA VALLEY EDUCATION REGION, 1971-1986:

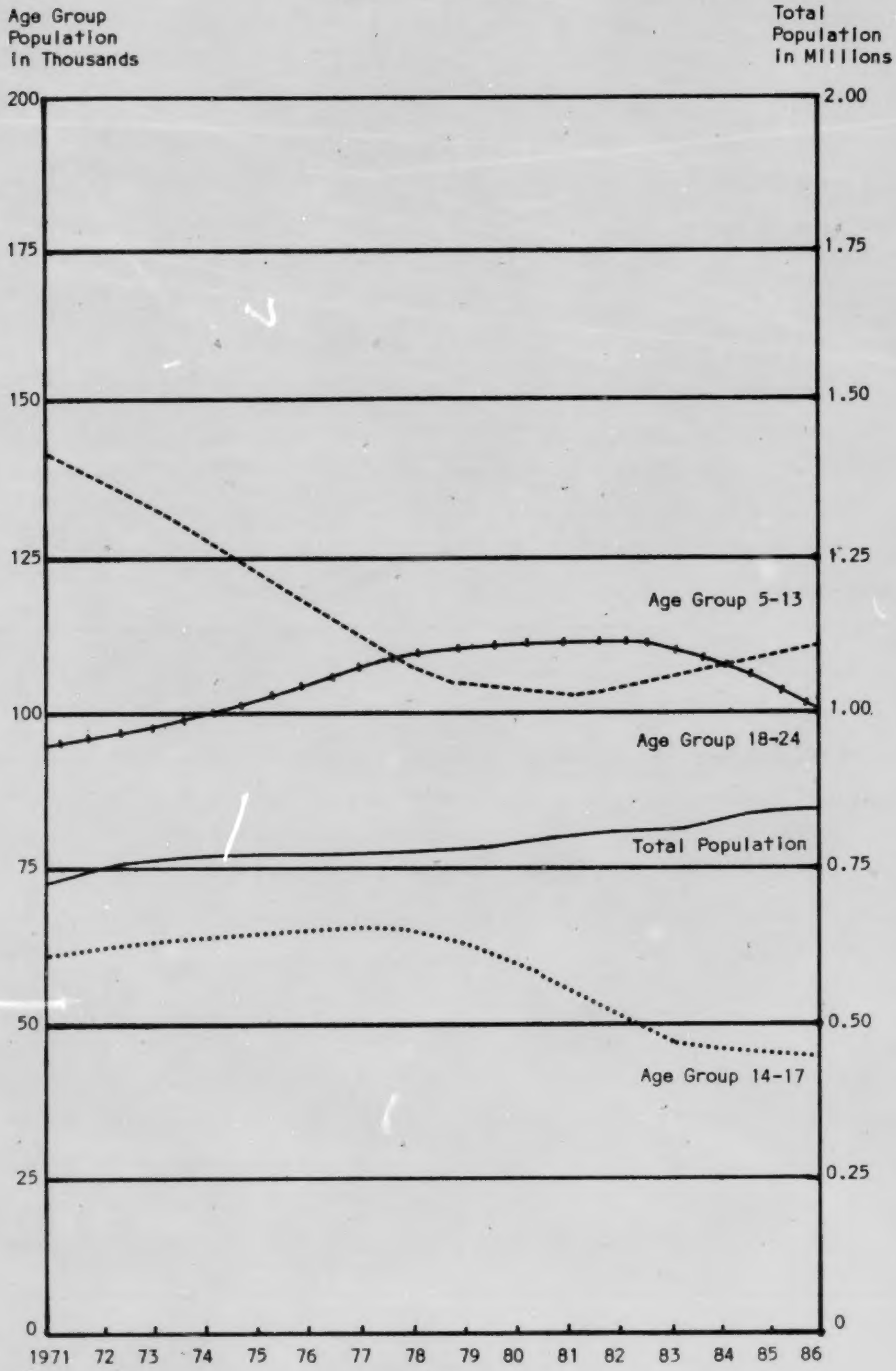
HIGH PROJECTION



Source: Data for individual ages in Section C.

FIGURE 5T: SELECTED AGE GROUP POPULATION APPROXIMATELY RELEVANT TO SCHOOL ENROLMENT IN THE OTTAWA VALLEY EDUCATION REGION, 1971-1986:

LOW PROJECTION



Source: Data for individual ages in Section C.

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level at the end of the projection period.

In the Midnorthern Region the 1976 Census revealed that the whole region had lost population more rapidly than anticipated, although there were increases in the 14 to 17 and 18 to 24 age groups in Algoma. Significantly lower numbers of persons aged 5 to 13 in Sudbury (the Regional Municipality and District combined), which may have been partly the result of fertility decline -- population under one year of age in Sudbury went down in number from 4,150 in the 1971 Census to 3,265 in the 1976 Census -- brought the total for the 5 to 13 age group across the Midnorthern Region to an even lower level than that given in the low projection. The overall effect of population change appears to have been in the direction of the swings in size of age groups and total population shown for the low projection in Figure 5F rather than towards the trends for the high projection indicated in Figure 5E.

In the Northeastern Region total population was projected to increase by about 5% or 6% by 1986. Steep declines were projected for the 5 to 13 age group until after 1980, and these declines would move into the 14 to 17 age group after 1978 and into the 18 to 24 age group after 1982. By 1982 the 5 to 13 age group was projected to be increasing for the region as a whole, and in most subareas, with the possible exception of Cochrane and Timiskaming.

According to the 1976 Census, total population fell between the high and low projections for that year in Cochrane, Muskoka and Parry Sound but was below both projections in Nipissing and Timiskaming. Since net out-migration between 1966 and 1971 had been very substantial from Cochrane, and population aged 0 to 4 in 1976 was only slightly higher than that recorded by the 1971 Census, movement may have been somewhat reduced from that area. In any event, total population of 96,825 as recorded by the 1976 Census for Cochrane was higher than would have been expected on the basis of past migration trends. In Muskoka (Regional Municipality and District combined), population aged 0 to 4 in the 1976 Census was more numerous than in 1971, whereas it was about the same in Parry Sound. This suggests that either fertility had remained fairly high or there had been increased migration into the Muskoka and Parry Sound Districts, where population had experienced earlier gains from in-migration over 1966-71.

Across the Northeastern Region as a whole, the 1976 Census indicated that the three age groups which we are examining in detail had all moved in the directions anticipated by the projections. The 5 to 13 age group had declined about 18% across the region; the decline experienced for that age group in Cochrane was even steeper than anticipated. Across the region the 14 to 17 age group had not slowed its growth as much as expected, while the 18 to 24 age group had increased by only about 11%, less than half the growth which we had projected. The total 1976 Census population for the Northeastern Region, at 291,670, came very close to the high projection of 291,297 for that year, as shown in Table 5.8 and Figure 5G.

The Eastern Region and Niagara have similar demographic trends, although the absolute numbers of population in the Eastern Region are only about half those in Niagara. Both regions were projected to increase in total population over the period; however, increase in Niagara was expected to be greater than that in the Eastern Region. Age group 5 to 13 was expected to decline in both regions until 1980 or 1981, but more steeply in the Eastern Region; after 1980 the numbers in that group were projected to increase slightly in both regions. Ages 14 to 17 were expected to remain approximately steady in both regions until about 1979, after which they would decline. Again, decline would be steeper in the Eastern Region, particularly in the first half of the decade. Ages 18 to 24 would increase in both regions until 1980, then would remain steady until about 1983, followed by decline, which would be steeper in the Eastern Region.

However, these projections -- as explained earlier -- were developed on the basis of demographic trends prevailing in 1971. Since then some change has occurred in the political environment which has affected the growth of the Eastern Region and may influence its course to an important extent in the future. The 1976 Census revealed that all three age groups, as well as total population, had increased in the Eastern Region more than anticipated by either of the projections. Where the 5 to 13 age group had been expected to grow to between 73,000 and 76,000, it had grown to 80,000; where the 14 to 17 age group was expected to reach about 40,000 by 1976, it had increased to almost 43,000; where the 18 to 24 age group was projected to number between 60,000 and 64,000, it had actually attained 65,000. Total population, projected to be about 48,000 by 1976 in the Eastern Region, had reached 51,000.

With the possible exception of Lennox and Addington, where growth was less than expected for the 5 to 13 and 14 to 17 age groups, the pattern of less steep declines where declines were projected and higher growth where growth was projected held across all subareas in the region. Even the number of persons under one year of age increased slightly between the 1971 and 1976 Censuses. However, in view of the increases occurring generally across all age groups, net in-migration rather than higher natural increase probably explains the growth in population for the Eastern Region. Probably this movement is associated with the threat of Quebec separatism, which has induced migration across the Quebec provincial border into neighbouring counties of Ontario. Consequently, even the high projection for the Eastern Region, if Quebec separatism continues to pose a threat to Anglophone Canadians, is likely to understate the future population growth for the subareas contained in the region.

For the Niagara Region the 1976 Census findings agreed more closely with the projected total and age group population. The recorded number in the 5 to 13 age group, at 135,000 according to the 1976 Census, was the number given for 1976 in the high projection; similarly, the 14 to 17 age group was anticipated correctly by the high projection at about 69,000. However, older ages -- that is, the 18 to 24 age group and the total population -- were both lower than projected. The pattern for the region as a whole also applied to Haldimand-Norfolk (combined). However, other subareas were not so consistent. The Regional Municipality of Niagara had more persons aged 5 to 13 than expected but fell between the two projections for ages 14 to 17 and for total population; the 18 to 24 age group was lower than projected. Hamilton-Wentworth (combined) had fewer persons in the age groups 5 to 13 and 14 to 17, and more persons aged 18 to 24, than projected. Across the region generally the projections were out most for the 18 to 24 age group, which was over-estimated for 1976 by 4% to 9%, suggesting that persons in that age group had migrated out of the Niagara Region.

The Western Region and the Ottawa Valley Region have similar trends in population in many respects although, again, the total numbers are at different levels. In both regions age group 5 to 13 was expected to decline until about 1980 and then to rise by 1986 to a level below or close to that for 1971. Ages 14 to 17 would remain rather steady, with very slight growth to 1978, after which declines would set in. Age group 18 to 24 was expected to grow in both regions until about 1982, after which some decline was foreseen.

For the Western Region the 1976 Census findings fell between the numbers given in the two projections for 1976, with the exception of the 18 to 24 age group, which was slightly below the low projection. Growth tended to exceed expectations to the greatest extent in Huron, Lambton, and Kent, where the 5 to 13 and (except for Kent) the 14 to 17 age groups were higher than projected. Growth was within the expected range for Elgin, and also for Middlesex with the exception of the 18 to 24 age group, which was higher than projected. Essex appeared to be growing more slowly than other parts of the region, on the basis of a total census population which was more than 11,000 short of the lower projection for 1976.

The Ottawa Valley Region, like the Western Region, was recorded at the 1976 Census as having population between the high and low projections. However, total population in Dundas, Glengarry, Lanark, Prescott, and Russell all exceeded the high projection, mostly reflecting migration into these counties. Lanark, Prescott, and Russell also had larger numbers in the 5 to 13 and 14 to 17 age groups than expected under the assumptions of either projection. Some evidence exists that the number of births may be increasing in these counties, since population under 1 year of age in 1976 exceeded that in 1971; however, migration into these counties from Quebec -- a movement similar to that described in relation to population growth in the Eastern Region -- is probably the main reason. Ottawa-Carleton experienced unexpected growth in the 18 to 24 age group, whereas most other areas were found to have fewer persons in that age group than projected for 1976. Stormont, wherein Cornwall is located, was the only area where total population was below the low projection for 1976.

The Midwestern Region and the Central Region also have somewhat comparable population trends, although they are much farther apart in population totals and the swings are much more extreme in the Central Region than in the Midwestern. Both regions have population increases projected: population in the Central Region is expected to climb from about 3 million in 1971 to between 3.6 and 5 million in 1986, while that for the Midwestern Region would climb over the same period from about 700,000 to between 827,000 and 1 million persons. In both regions the 5 to 13 age group is projected to remain roughly at the same level or fall slightly until about 1980, after which it will increase by 1986. Age group 14 to 17 is expected to increase to between 250,000 and 280,000 but will be decreasing before 1986 in the Central Region; in the Midwestern Region it could be decreasing by 1981. The age group is likely to show an upward trend by 1986 but may continue declining in the Midwestern Region. Ages 18 to 24 are expected to grow importantly throughout the whole period in both regions, with stronger growth (40%) in the Central Region than in the Midwestern Region (33%). Under the low projection this age group could begin declining about 1983 in both the Central and Midwestern Regions.

According to the 1976 Census, the population of the Central Region was 3,473,635 in 1976, about midway between the two projections for that year. The census count for population aged 5 to 13, as well as for persons aged 18 to 24, exceeded that expected by either projection, suggesting the possibility of high fertility and probable migration of those age groups in the region. On the basis of the analysis of fertility trends in Chapter One, an increase in fertility probably was not the main reason for growth of the 5 to 13 age group, but we decided to test this hypothesis by comparing census results for persons in the "under 1 year" and the "total age 0-4" groups for the various parts of the Central Region.

SELECTED CENSUS POPULATION AGE GROUPS, CENTRAL REGION

	1971		1976	
County, District or Regional Area	Under 1 Year	Total Age 0-4	Under 1 Year	Total Age 0-4
Dufferin	400	1880	520	2600
Durham & Ontario	4030	21645	3750	20410
Haliburton	125	700	125	680
Halton	3205	17020	3285	18020
Peel	5200	26630	6700	34900
Simcoe	2740	13605	3215	16650
Victoria	465	2345	595	3070
York (including Toronto)	36010	176995	31055	153445
Central Region	52175	260820	49245	249775

This table yields the interesting suggestion that fertility, in terms of the total number of births and the resulting number of children under 5 years of age, may have declined only in Durham (now including Ontario County) and in the combined Municipality of York and Municipality of Metropolitan Toronto. In other areas, notably Peel, Simcoe, Victoria, Dufferin, and Halton, the age group had actually increased in size by 1976. However, since the 0 to 4 age group for combined York-

Metropolitan Toronto represents 61.4% of that for the Central Region, the direction of its trend is dominant for the age group across the region. We must also recognize that much of the increase in population in the Central Region has resulted from in-migration, a trend which has been noted in Chapter Three, where it was indicated that about 55% of population change in the Central Region over the period 1966 to 1971 had come from net in-migration. In some parts of the region, notably Dufferin, Haliburton, and Peel, the contribution of in-migration to population growth in earlier years has been over 70%.

In view of the importance of the Regional Municipality of York and the Municipality of Metropolitan Toronto in the Central Region, it may be of interest to note some expected changes for those areas. When combined, there is an expected increase in total population from about 2.25 million persons in 1971 to between 2.53 and 3 million in 1986. The 5 to 13 age group, which is currently declining, may increase after 1981, and by 1986 there may be about 30,000 less or 36,000 more children in that age group than there were in 1971, depending upon whether the low or high projection proves more valid. While the range between the projections is wide, this occurs because of the importance of migration as a component of growth for the area. Ages 14 to 17 are projected to increase at first, but decline will be evident by 1981; however, numbers in 1986 are likely to about equal, and possibly exceed, the 1971 level by about 8,000. The 18 to 24 age group is expected to grow throughout the period of the projection from 291,000 in 1971 to between 272,000 and 333,000 in 1986. These trends would apply generally to the area, although they would be likely to affect particular jurisdictions in a selective fashion.

In the Midwestern Region, the 1976 Census reported an increase in population that fell between the two projections but approached the high projection more closely. There was more than expected growth in the 14 to 17 and 18 to 24 age groups, while the 5 to 13 age group was slightly below expected levels. Throughout the various parts of the region, Bruce, Grey, and Oxford showed the most unexpected growth, while Brant was lagging. The pattern across the age groups generally followed the trends for the region with the notable exception of Waterloo, where the 18 to 24 age group had grown much more rapidly than anticipated.

The reader can follow the course of other expected changes for counties, districts, and regional areas within education regions by referring to the appropriate sections of Tables 5.4 through 5.21, or the more detailed projections by single ages for individual years of the projection period as given in Section C.

Comparison with Other Projections

Comparison of the high and low projections for the various education regions in Ontario with 1976 Census data on population has suggested that the patterns of population change are generally falling within the range of the two projections. The Northwestern and Midnorthern Regions are tending towards the low projection for their populations. The Western and Central Regions are inclining to a midway position but York-Metropolitan Toronto (combined) in the Central Region is following the low projection. The populations of the Midwestern and Ottawa Valley Regions are also midway, but inclining upwards, and certain subareas -- particularly Dundas, Glengarry, Lanark, Prescott, and Russell -- are exceeding the high projection. Niagara Region seems to be following the high projection for age groups 5 to 17 and the low projection for ages 18 to 24 and total population. The population of the Eastern Region is generally exceeding the high projection. Some possible explanations have been set forth above.

Our overall projections for Ontario suggest that the province's population will be between 8.8 and 10.6 millions in total size by 1986. If the 1976 Census is a reliable indicator of future trends, population may fall midway, at about 9.7 million. This is very close to earlier projections made by the Ontario Ministry of Treasury, Economics and Intergovernmental Affairs in 1973[2] on the basis of somewhat different assumptions, including the expectation of net migration into Ontario of between 50,000 and 60,000 persons and a total fertility rate of 2,105 or more. A projection published by Statistics Canada in 1974[3] indicated an expected total population for Ontario of between 10 and 11 million persons, close to the high projection in this report.

Variance of our projections from those of other agencies is based upon differing assumptions respecting fertility, migration, and mortality, as well as upon the fact that the projections of those agencies were generally based upon aggregate provincial data rather than upon patterns within the province. Particular differences which can be noted are:

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[2] Ontario Short-Term Population Projections 1971-1986 (Toronto: Ministry of Treasury, Economics and Intergovernmental Affairs, Demographic Studies Section, January, 1973), pp. 15, 20, 25.

[3] Statistics Canada, Population Projections for Canada and the Provinces 1972-2001 (Ottawa: Information Canada, 1974), p. 61.

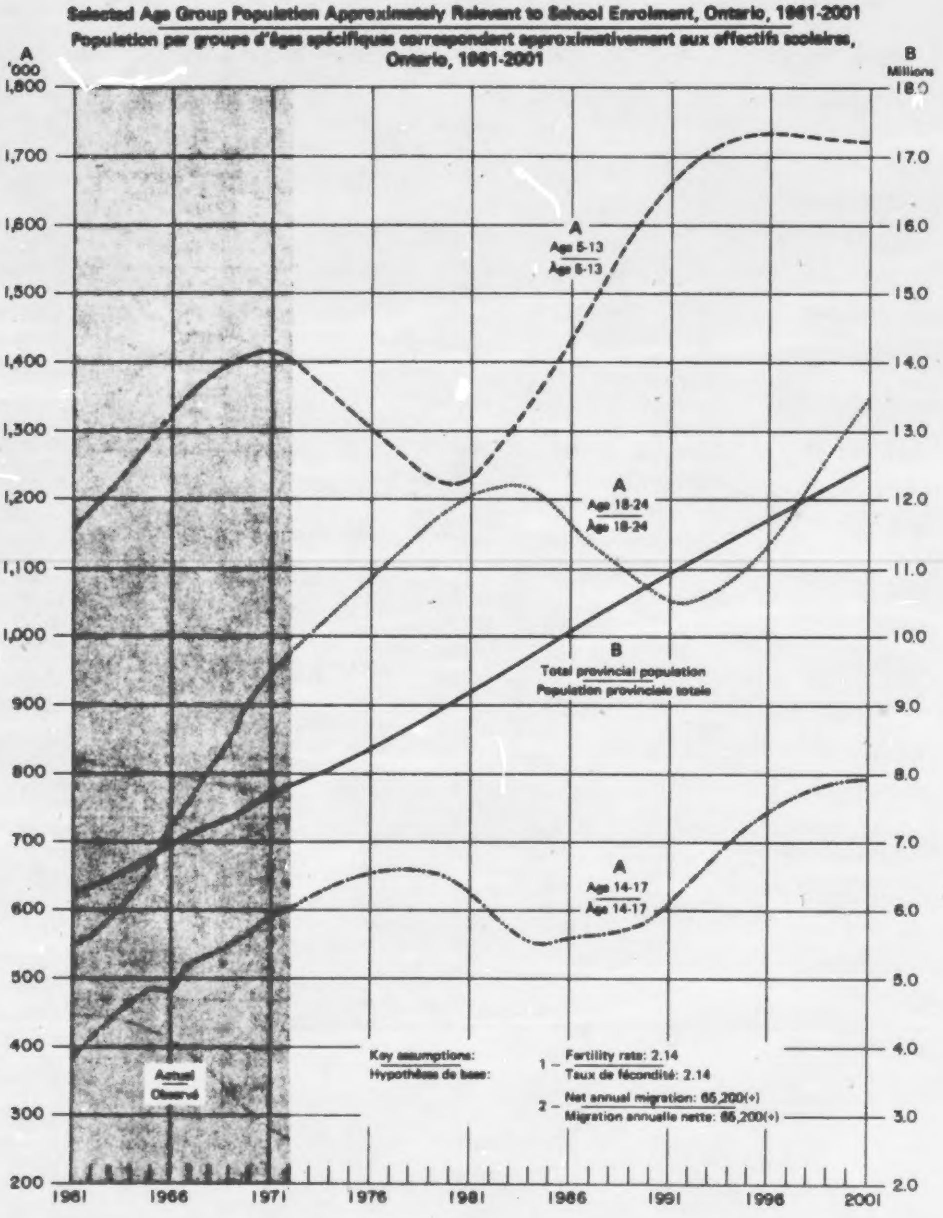
(1) The Statistics Canada medium fertility projection implied that the total fertility rate would fall to 2,200 for Ontario by 1985; that from Treasury, Economics and Intergovernmental Affairs assumed that fertility would decline from 2,219 in 1971 to 2,105 in 1986; our assumption was that the total fertility rate would fall to 1,936 in 1986.

(2) Mortality was projected to decline at a rate below 1% after 1971 by Statistics Canada; Treasury, Economics and Intergovernmental Affairs assumed that infant mortality would decline at about 2%, that mortality for ages 1 to 60 would decline at rates less than 1%, and that mortality for persons over 60 would decline at about a 2% rate. Our assumptions implied a decline in mortality at about a 2.25% rate.

(3) The Statistics Canada input for migration was based on the assumption that Ontario would receive 25,435 net immigrants per year, based on a net movement into Canada of 59,442 persons. Treasury, Economics and Intergovernmental Affairs based its assumptions on a net movement into Ontario of 60,000 migrants. Our migration assumptions cannot be explicitly stated in terms of numbers of migrants, since they are composed of the summation of net migration across counties, districts, and regional areas of Ontario and since they were generated on the basis of rates rather than of net levels of movement. For the high projection, our input assumed that movement into or out of the various counties, districts, and regional areas would continue at the same rate as it had over the last few intercensal periods, with that rate computed by a formula-fitting process. For the low projection it was assumed that migration in and out of an area would be offsetting, so that no net gain or loss to population would occur from that source.

It is interesting to compare not only the overall level of our population projections with those made by other agencies but also the relative changes projected for school age groups. Figure 5U reproduces a chart from a paper by Dr. Zoltan Zsigmond, in which he set forth the age-group implications of the Statistics Canada projection for Ontario, based upon the medium fertility assumption as outlined in (1) above. Comparing Figures 5A and 5B with the comparable portion of Figure 5U -- the years 1971 to 1986 only -- we find that there is considerable similarity in the trends in Figures 5A and 5U, but the amplitude of the

FIGURE 5U: CHANGES IN ONTARIO POPULATION BASED UPON STATISTICS CANADA PROJECTIONS



Source: Zoltan Zsigmond, "Population and Enrolment Trends 1961-2001, The Canadian Case", a paper presented to the Annual Conference of the International Society of Education Planners, San Francisco, June, 1975.

swings is greater in the Statistics Canada projection than for our high projection. Our low projection differs quite substantially, resulting in slower rates of growth and a more gradual pattern of change across all age groups.

Differences in projections result from many factors, of which the basic assumptions respecting fertility, migration, and mortality, as indicated above, and the methodologies employed -- which are too technical to attempt to compare here -- are among the most obvious.[4] Differences also arise out of the purposes for which the projections are intended and out of environmental circumstances which may induce a pessimistic or optimistic bias in the assumptions made for the projection.

The projections which have been generated in this study are designed for the use of educators who are planning future educational facilities. Therefore, they have concentrated on those age groups which are most likely to provide the future core of students at various levels of the educational system; other age groups, which may have significant changes under way, have been ignored. The projections have been predicated upon assumptions which were generated, in the first instance, on the basis of vital statistics data and census statistics for the years 1951 to 1971, and within the social, political, and economic climate prevailing throughout Ontario during the early '70s. In the early months of 1978 the projections were revised, after considering the 1976 Census data and after recognizing that depressed economic conditions and high unemployment were likely to curtail migration and to delay any potential upturn in fertility. The resulting two projections cover the range within which the Ontario population is likely to fall within the period to 1986. However, long before that year has been reached, there will be a need for further revisions in assumptions, to accommodate ongoing change in the many factors which influence population growth across the province.

Population projections have most validity for the near future and their reliability decreases with more distant years. Therefore, revising projections at periodic intervals is a necessary procedure. There are many reasons for this. They include changes in attitudes towards child-bearing on the part of parents, alterations in immigration policy by the federal government, the relative availability of employment opportunities and of housing, and many other factors. Even political events may induce population change. A good example of this is the influence of the Quebec separatist movement, which has sent a stream of migrants out of Quebec into nearby counties of Ontario, causing those counties to grow considerably above anticipated levels of population. Such pressures can develop with little warning.

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[4] For methodology used in the Statistics Canada projection see Technical Report on Population Projections for Canada and the Provinces 1972-2001 (Ottawa: Information Canada, 1975).

Some Educational Implications

Some keynotes of this report are the findings respecting population trends in the school age groups and apparent changes in migration in some parts of the province. Our analysis has suggested that the decline in elementary school age population, while general across the province, is most concentrated in the large urban centres and particularly in the York-Metropolitan Toronto (combined) area. There is not so great a drop in 5- to 13-year-old population or in the level of births in relation to population in some other parts of the province, or even in other parts of the Central Region. Indeed, the Central, Northwestern, and Eastern Regions have all maintained higher numbers in that age group than anticipated. Some parts of Ontario near the Quebec border are even increasing in numbers of school age children in all age groups, largely as a result of migration from Quebec to Ontario.

Educators have become familiar with the problems surrounding the decline in numbers of children of elementary school age, but the problems relating to older school age groups are not yet so well defined -- perhaps because they are still looming on the horizon, for the most part. Although secondary level schools are beginning to experience a decline in enrolment during the early years, it is apparent from the population trends for the 14 to 17 age group that most or all of the problems which are now centred about elementary education will become focussed upon secondary education by the early 1980s. Just as there may be some increase in enrolments at the elementary level -- an echo of the earlier baby boom -- a crisis situation may emerge as total enrolments decline at the secondary level.

Finally, we can foresee the decline of the 18 to 24 age group towards the end of the period studied. In a sense this may not be as catastrophic in its effects upon the educational system as earlier declines in other population groups of school age, since the 18- to 24-

year-olds are beyond the legally required school attendance ages and many of them have already opted out of the educational system. Adaptation to new conditions and to new sets of demands has been forced upon the post-secondary system of education and will continue to be thrust upon it. However, if unemployment of young people remains high, there may be a tendency on the part of this age group to enroll in greater numbers in the post-secondary system, as there was throughout the depression '30s. An issue which would be likely to emerge would be the role of the universities vis-à-vis the community colleges and other alternative forms of education, in a society where Ph.D.s were plentiful and skilled tradesmen in short supply.

Implications of population change for the educational system which have been raised above are merely indicators of the sorts of problems which may arise. They are by no means an exhaustive listing of the issues which will require study and analysis as a result of alterations in fertility, mortality and migration, and their consequences for education. They suggest why the need for research on population is an ongoing one.

The apparent changes in fertility and migration which we have reported in this study may effectively redistribute the pattern of educational need across Ontario. However, the problems which the population trends for various parts of the province may pose, in terms of allocating educational facilities, closing or relocating schools, phasing in or phasing out educational programs, and so forth, are likely to differ considerably according to the size and rapidity of growth or decline of population in the school age groups of particular areas and subareas. We need to pay more attention to those factors which are bringing about change in fertility, mortality, and migration and we need to comprehend more effectively how population interacts with its social, economic, and political environment. Only then can we hope to improve the accuracy of population projections sufficiently to avoid being caught in crisis situations such as those arising out of the paralleled growth in school enrolments during the 1950s, and the drastic decline in school enrolments which is presently confounding Ontario educators.

TABLE 5.0

CHANGES IN SELECTED AGE GROUP POPULATION APPROXIMATELY RELEVANT TO SCHOOL ENROLMENT, AND IN TOTAL POPULATION, ONTARIO, 1971-1986: HIGH PROJECTION

Year	Total Ages 5-13	% Change from Preceding Year	Total Ages 14-17	% Change from Preceding Year	Total Ages 18-24	% Change from Preceding Year	Total Population	% Change from Preceding Year
1971	1416445		594695		946630		7702435	
1972	1408930	-0.53	610674	2.69	955955	0.98	7851214	1.93
1973	1390824	-1.29	623002	2.02	978471	2.36	8001942	1.92
1974	1370401	-1.47	637178	2.28	1003656	2.57	8159966	1.97
1975	1350718	-1.44	652751	2.44	1034557	3.08	8325459	2.03
1976	1332084	-1.38	664534	1.81	1064389	2.88	8497124	2.06
1977	1313600	-1.39	676843	1.85	1096537	3.02	8676011	2.11
1978	1299878	-1.04	685938	1.34	1126915	2.77	8861486	2.14
1979	1294459	-0.42	685466	-0.07	1158159	2.77	9052971	2.16
1980	1304078	0.74	675103	-1.51	1181436	2.01	9251775	2.20
1981	1326069	1.69	652722	-3.32	1208437	2.29	9457689	2.23
1982	1360263	2.58	623005	-4.55	1230812	1.85	9670622	2.25
1983	1398292	2.80	597846	-4.04	1245666	1.21	9890490	2.27
1984	1433915	2.55	590456	-1.24	1246159	0.04	10117717	2.30
1985	1473465	2.76	591747	0.22	1235540	-0.85	10351960	2.32
1986	1512812	2.67	605708	2.36	1210458	-2.03	10592717	2.33

Source: Detailed data in Section C.

TABLE 5.1

CHANGES IN SELECTED AGE GROUP POPULATION APPROXIMATELY RELEVANT TO SCHOOL ENROLMENT, AND IN TOTAL POPULATION, ONTARIO, 1971-1986: LOW PROJECTION

Year	Total Ages 5-13	% Change from Preceding Year	Total Ages 14-17	% Change from Preceding Year	Total Ages 18-24	% Change from Preceding Year	Total Population	% Change from Preceding Year
1971	1416445		594695		946630		7702435	
1972	1394775	-1.53	606596	2.00	944366	-0.24	7774211	0.93
1973	1361990	-2.35	614426	1.29	956781	1.31	7842811	0.88
1974	1326482	-2.61	623513	1.48	973032	1.70	7913505	0.90
1975	1291364	-2.65	633258	1.56	995490	2.31	7986378	0.92
1976	1257031	-2.66	638641	0.85	1017060	2.17	8059956	0.92
1977	1221454	-2.83	643743	0.80	1040144	2.27	8135093	0.93
1978	1189901	-2.58	644999	0.19	1060286	1.94	8210948	0.93
1979	1165717	-2.03	636650	-1.29	1079825	1.84	8286623	0.92
1980	1154925	-0.93	618847	-2.80	1090698	1.01	8363098	0.92
1981	1154902	-0.00	589873	-4.68	1103413	1.17	8439870	0.92
1982	1165250	0.90	554539	-5.99	1110528	0.64	8516509	0.91
1983	1178440	1.13	523656	-5.57	1109886	-0.06	8592626	0.89
1984	1188889	0.89	508769	-2.84	1095208	-1.32	8668310	0.88
1985	1202281	1.13	501481	-1.43	1069991	-2.30	8742886	0.86
1986	1216169	1.15	503733	0.45	1032198	-3.53	8815503	0.83

Source: Detailed data in Section C.

TABLE 5.2

PROJECTED GROWTH OF TOTAL AND SCHOOL AGE POPULATION BY SELECTED AGE GROUPS IN ONTARIO, CENSUS YEARS: HIGH PROJECTION

Age Group	1971	1976		1981		1986	
	Number	Number	% Change	Number	% Change	Number	% Change
5-13	1416445	1332084	-5.96	1326069	-0.45	1512812	14.08
14-17	594695	664534	11.74	652722	-1.78	605708	-7.20
18-24	946630	1064389	12.44	1208437	13.53	1210458	0.17
Total	7702435	8497124	10.32	9457689	11.30	10592717	12.00

Source: Detailed data in Section C.

TABLE 5.3

PROJECTED GROWTH OF TOTAL AND SCHOOL AGE POPULATION BY SELECTED AGE GROUPS IN ONTARIO, CENSUS YEARS: LOW PROJECTION

Age Group	1971	1976		1981		1986	
	Number	Number	% Change	Number	% Change	Number	% Change
5-13	1416445	1257031	-11.25	1154902	-8.12	1216169	5.30
14-17	594695	638641	7.39	589873	-7.64	503733	-14.60
18-24	946630	1017060	7.44	1103413	8.49	1032198	-6.45
Total	7702435	8059956	4.64	8439870	4.71	8815503	4.45

Source: Detailed data in Section C.

TABLE 5.4

PROJECTED GROWTH OF TOTAL AND SCHOOL AGE POPULATION BY SELECTED AGE GROUPS IN THE NORTHWESTERN EDUCATION REGION: HIGH PROJECTION

Age Group	1971	1976		1981		1986	
	Number	Number	% Change	Number	% Change	Number	% Change
Northwestern Region							
5-13	44350	36249	-18.27	31348	-13.52	31836	1.56
14-17	19245	19132	- 0.59	15869	-17.06	12938	-18.47
18-24	27265	30907	13.36	31612	2.28	26698	-15.54
All ages	224179	220857	- 1.48	218333	- 1.14	215231	- 1.42
Kenora							
5-13	11575	9263	-19.97	7559	-18.40	7042	- 6.84
14-17	4600	4730	2.83	3741	-20.91	3027	-19.09
18-24	6445	7679	19.15	8224	7.10	6865	-16.53
All ages	53240	51009	- 4.19	48998	- 3.94	46724	- 4.64
Rainy River							
5-13	5185	4411	-14.93	3698	-16.16	3566	- 3.54
14-17	2405	2211	- 8.07	1991	- 9.95	1628	-18.23
18-24	3000	3418	13.93	3315	- 3.01	2873	-13.33
All ages	25755	25177	- 2.24	24637	- 2.14	24045	- 2.40
Thunder Bay							
5-13	27590	22575	-18.18	20091	-11.00	21228	5.66
14-17	12240	12192	- 0.39	10136	-16.86	8283	-18.28
18-24	17820	19810	11.17	20073	1.33	16961	-15.50
All ages	145184	144672	- 0.35	144699	0.02	144464	- 0.16

Source: Detailed data in Section C.

TABLE 5.5

PROJECTED GROWTH OF TOTAL AND SCHOOL AGE POPULATION BY SELECTED AGE GROUPS IN THE NORTHWESTERN EDUCATION REGION: [illegible]OW PROJECTION

Age Group	1971	1976		1981		1986	
	Number	Number	% Change	Number	% Change	Number	% Change
Northwestern Region							
5-13	44350	39398	-11.17	37598	- 4.57	41296	9.84
14-17	19245	20147	4.69	18037	-10.47	16236	- 9.98
18-24	27265	32509	19.23	34986	7.62	31824	- 9.04
All Ages	224179	236556	5.52	250860	6.05	265782	5.95
Kenora							
5-13	11575	10893	- 5.89	10584	- 2.84	10966	3.61
14-17	4600	5152	12.00	4737	- 8.06	4642	- 2.01
18-24	6445	7775	20.64	9005	15.82	8615	- 4.33
All Ages	53240	57349	7.72	61617	7.44	65968	7.06
Rainy River							
5-13	5185	4600	-11.28	4207	-8.54	4689	11.46
14-17	2405	2320	- 3.53	2174	-6.29	1873	-13.84
18-24	3000	3952	31.73	4069	2.96	3692	- 9.26
All Ages	25755	26917	4.51	28515	5.94	30255	6.10
Thunder Bay							
5-13	27590	23905	-13.36	22807	- 4.59	25640	12.42
14-17	12240	12675	3.55	11126	-12.22	9721	-12.63
18-24	17820	20781	16.62	21913	5.45	19516	-10.94
All ages	145184	152291	4.89	160729	5.54	169559	5.49

Source: Detailed data in Section C.

TABLE 5.6

PROJECTED GROWTH OF TOTAL AND SCHOOL AGE POPULATION BY SELECTED AGE GROUPS IN THE MIDNORTHERN EDUCATION REGION:

HIGH PROJECTION

Age Group	1971	1976		1981		1986	
	Number	Number	% Change	Number	% Change	Number	% Change
Midnorthern Region							
5-13	71390	63525	-11.02	61097	- 3.82	69641	13.98
14-17	28990	32708	12.83	30092	- 8.00	26438	-12.14
18-24	43390	51685	19.12	58849	13.86	55802	- 5.18
All ages	330534	361508	9.37	397684	10.01	437331	9.97
Algoma							
5-13	26025	22852	-12.19	20512	-10.2[illegible]	21706	5.82
14-17	10485	11685	11.44	10729	- 8.18	8947	-16.61
18-24	14800	16848	13.84	18699	10.99	17456	- 6.65
All ages	121635	127569	4.88	134123	5.14	141167	5.25
Manitoulin							
5-13	2220	2069	- 6.80	1855	-10.34	1832	- 1.24
14-17	1120	1044	- 6.79	973	- 6.80	859	-11.72
18-24	1120	1533	36.88	1500	- 2.15	1400	- 6.67
All ages	10930	11203	2.50	11518	2.81	11912	3.42
Sudbury							
5-13	43145	38604	-10.52	38730	0.33	46104	19.04
14-17	17385	19978	14.92	18390	- 7.95	16631	- 9.56
18-24	27470	33304	21.24	38651	16.05	36946	- 4.41
All ages	197969	222736	12.51	252042	13.16	284251	12.78

Source: Detailed data in Section C.

TABLE 5.7

PROJECTED GROWTH OF TOTAL AND SCHOOL AGE POPULATION BY SELECTED AGE GROUPS IN THE MIDNORTHERN EDUCATION REGION: LOW PROJECTION

Age Group	1971	1976		1981		1986	
	Number	Number	% Change	Number	% Change	Number	% Change
Midnorthern Region							
5-13	71390	62910	-11.88	59134	- 6.00	64960	9.85
14-17	28990	32255	11.26	29395	- 8.87	25478	-13.33
18-24	43390	49422	13.90	55219	11.70	51548	- 6.65
All ages	330534	354134	7.14	380304	7.42	407715	7.21
Algoma							
5-13	26025	22653	-12.96	20304	-10.37	22055	8.62
14-17	10485	11760	12.16	10714	- 8.89	8812	-17.85
18-24	14800	17929	21.14	20123	12.24	18758	- 6.78
All ages	121635	128780	5.87	137177	6.52	146335	6.68
Manitoulin							
5-13	2220	1955	-11.94	1724	-11.82	1893	9.80
14-17	1120	1042	- 6.96	921	-11.61	764	-17.05
18-24	1120	1798	60.54	1806	0.44	1591	-11.90
All ages	10930	11240	2.84	11811	5.08	12511	5.93
Sudbury							
5-13	43145	38301	-11.23	37105	- 3.12	41012	10.53
14-17	17385	19453	11.89	17760	- 8.70	15902	-10.46
18-24	27470	29695	8.10	33290	12.11	31199	- 6.28
All ages	197969	214114	8.16	231316	8.03	248868	7.59

Source: Detailed data in Section C.

TABLE 5.8

PROJECTED GROWTH OF TOTAL AND SCHOOL AGE POPULATION BY SELECTED AGE GROUPS IN THE NORTHEASTERN EDUCATION REGION:

HIGH PROJECTION

Age Group	1971	1976		1981		1986	
	Number	Number	% Change	Number	% Change	Number	% Change
Northeastern Region							
5-13	59725	49692	-16.80	43620	-12.22	47787	9.55
14-17	26320	26805	1.84	23335	-12.94	19034	-18.43
18-24	32275	40741	26.23	43675	7.20	38477	-11.90
All ages	283459	291297	2.77	303428	4.16	319309	5.23
Cochrane							
5-13	21115	16117	-23.67	12590	-21.88	12338	- 2.00
14-17	9160	8759	- 4.38	7027	-19.77	5069	-27.86
18-24	11605	14318	23.38	14557	1.67	11789	-19.01
All ages	95895	91487	- 4.60	87941	- 3.88	84226	- 4.22
Muskoka							
5-13	5440	5481	0.75	6436	17.42	8719	35.47
14-17	2750	2873	4.47	2837	- 1.25	3123	10.08
18-24	3280	4502	37.26	5177	14.99	5115	- 1.20
All ages	31660	37508	18.47	45437	21.14	55705	22.60
Nipissing							
5-13	17800	15312	-13.98	13251	-13.46	14554	9.83
14-17	7330	8043	9.73	7450	- 7.37	5878	-21.10
18-24	8880	11596	30.59	13199	13.82	12209	- 7.50
All ages	78860	83701	6.14	89304	6.69	95820	7.30
Parry Sound							
5-13	5680	5223	- 8.05	5090	- 2.55	5821	14.36
14-17	2705	2775	2.59	2659	- 4.18	2321	-12.71
18-24	2925	3833	31.04	4178	9.00	4060	- 2.82
All ages	30065	32767	8.99	35744	9.09	39229	9.75
Timiskaming							
5-13	9690	7559	-21.99	6254	-17.26	6354	1.60
14-17	4375	4356	- 0.43	3362	-22.82	2643	-21.39
18-24	5585	6492	16.24	6563	1.09	5303	-19.20
All ages	46980	45836	- 2.44	45005	- 1.81	44332	- 1.50

Source: Detailed data in Section C.

TABLE 5.9

PROJECTED GROWTH OF TOTAL AND SCHOOL AGE POPULATION BY SELECTED AGE GROUPS IN THE NORTHEASTERN EDUCATION REGION: LOW PROJECTION

Age Group	1971	1976		1981		1986	
	Number	Number	% Change	Number	% Change	Number	% Change
Northeastern Region							
5-13	59725	50149	-16.03	44493	-11.28	49784	11.89
14-17	26320	27180	3.27	23729	-12.70	19192	-19.12
18-24	32275	43310	34.19	47252	9.10	41921	-11.28
All ages	283459	296520	4.61	313703	5.79	333488	6.31
Cochrane							
5-13	21115	18384	-12.93	16745	- 8.91	18377	9.75
14-17	9160	9472	3.41	8596	- 9.25	7258	-15.57
18-24	11605	15088	30.01	16548	9.68	15049	- 9.06
All ages	95895	101760	6.12	108845	6.96	116689	7.21
Muskoka							
5-13	5440	4403	-19.06	4106	- 6.75	4814	17.24
14-17	2750	2532	- 7.93	2030	-19.83	1733	-14.63
18-24	3280	4421	34.79	4533	2.53	3708	-18.20
All ages	31660	32271	1.93	33371	3.41	34616	3.73
Nipissing							
5-13	17800	14867	-16.48	12589	-15.32	14009	11.28
14-17	7330	7987	8.97	7197	- 9.89	5482	-23.83
18-24	8880	12172	37.07	13845	13.74	12561	- 9.27
All ages	78860	83005	5.26	88297	6.38	94489	7.01
Parry Sound							
5-13	5680	4588	-19.22	3978	-13.30	4519	13.60
14-17	2705	2632	- 2.70	2233	-15.16	1672	-25.12
18-24	2925	4321	47.73	4537	5.00	3990	-12.06
All ages	30065	30769	2.34	31824	3.43	33134	4.12
Timiskaming							
5-13	9690	7907	-18.40	7076	-10.51	8065	13.98
14-17	4375	4557	4.16	3673	-19.40	3047	-17.04
18-24	5585	7308	30.85	7789	6.58	6613	-15.10
All ages	46980	48718	3.70	51369	5.44	54562	6.22

Source: Detailed data in Section C.

TABLE 5.10

PROJECTED GROWTH OF TOTAL AND SCHOOL AGE POPULATION BY SELECTED AGE GROUPS IN THE WESTERN EDUCATION REGION:

HIGH PROJECTION

Age Group	1971	1976		1981		1986	
	Number	Number	% Change	Number	% Change	Number	% Change
Western Region							
5-13	172090	159702	- 7.20	156961	- 1.72	176658	12.55
14-17	73460	79774	8.60	76632	- 3.94	69911	- 8.77
18-24	112795	127310	12.87	140322	10.22	136248	- 2.91
All ages	922554	999438	8.33	1089530	9.01	1188528	9.09
Elgin							
5-13	11655	11414	- 2.06	11025	- 3.42	11937	8.25
14-17	4910	5331	8.59	5421	1.65	5051	- 6.81
18-24	7765	8741	12.57	9684	10.78	9804	1.25
All ages	66280	71310	7.59	77345	8.46	84009	8.62
Essex							
5-13	57440	54009	- 5.97	53381	- 1.16	60409	13.16
14-17	24410	26155	7.15	26023	- 0.50	23597	- 9.32
18-24	37650	43106	14.49	47242	9.60	46339	- 1.91
All ages	306439	333129	8.71	363904	9.24	397313	9.18
Huron							
5-13	10195	8376	-17.83	6620	-20.95	6003	- 9.33
14-17	4630	4477	- 3.30	3651	-18.43	2951	-19.19
18-24	5555	6231	12.17	6237	0.08	5211	-16.45
All ages	53020	50710	- 4.36	48481	- 4.40	46213	- 4.68
Kent							
5-13	19670	17208	-12.52	16238	- 5.63	18138	11.69
14-17	8630	9088	5.31	8183	- 9.97	7046	-13.87
18-24	11620	13873	19.41	15048	8.47	13761	- 8.55
All ages	101025	106285	5.21	112527	5.87	119266	5.99
Lambton							
5-13	22050	19042	-13.64	17812	- 6.46	19601	10.04
14-17	9980	10283	3.05	8771	-14.72	7847	-10.50
18-24	13720	16595	20.96	17410	4.90	15274	-12.27
All ages	114435	120123	4.97	126921	5.66	134248	5.77
Middlesex							
5-13	51080	49654	- 2.79	51885	4.49	60570	16.74
14-17	20900	24440	16.94	24583	0.59	23419	- 4.74
18-24	36485	38765	6.25	44702	15.32	45859	2.59
All ages	281354	317877	12.98	360349	13.36	407475	13.08

Source: Detailed data in Section C.

TABLE 5.11

PROJECTED GROWTH OF TOTAL AND SCHOOL AGE POPULATION BY SELECTED AGE GROUPS IN THE WESTERN EDUCATION REGION:

LOW PROJECTION

Age Group	1971	1976		1981		1986	
	Number	Number	% Change	Number	% Change	Number	% Change
Western Region							
5-13	172090	153050	-11.06	142856	- 6.65	154535	8.17
14-17	73460	77772	5.87	71641	- 7.88	62000	-13.46
18-24	112795	125345	11.13	134562	7.35	125224	- 6.94
All ages	922554	964932	4.59	1013501	5.03	1063377	4.92
Elgin							
5-13	11655	10864	- 6.79	9889	- 8.97	10151	2.65
14-17	4910	5158	5.05	5005	- 2.97	4403	-12.03
18-24	7765	8438	8.67	9044	7.18	8752	- 3.23
All ages	66280	68353	3.13	70869	3.68	73466	3.66
Essex							
5-13	57440	51943	- 9.57	48935	- 5.79	53074	8.46
14-17	24410	25473	4.35	24425	- 4.11	21155	-13.39
18-24	37650	41846	11.14	44646	6.69	42257	- 5.35
All ages	306439	321709	4.98	338743	5.29	356143	5.14
Huron							
5-13	10195	8667	-14.99	7547	-12.92	8420	11.57
14-17	4630	4718	1.90	3983	-15.79	3354	-15.79
18-24	5555	7627	37.30	8139	6.71	7155	-12.09
All ages	53020	54365	2.54	56809	4.50	59696	5.08
Kent							
5-13	19670	16789	-14.65	15577	- 7.22	17588	12.91
14-17	8630	9028	4.61	7944	-12.01	6645	-16.35
18-24	11620	14395	23.88	15572	8.18	14002	-10.08
All ages	101025	105446	4.38	111100	5.36	117223	5.51
Lambton							
5-13	22050	18824	-14.63	17560	- 6.71	19681	12.08
14-17	9980	10260	2.81	8656	-15.63	7647	-11.66
18-24	13720	16939	23.46	17774	4.93	15464	-13.00
All ages	114435	119890	4.77	126767	5.74	134263	5.91
Middlesex							
5-13	51080	45963	-10.02	43348	- 5.69	45621	5.24
14-17	20900	23135	10.69	21627	- 6.52	18797	-13.08
18-24	36485	36100	- 1.05	39388	9.11	37594	- 4.55
All ages	281354	295164	4.91	309208	4.76	322582	4.32

Source: Detailed data in Section C.

TABLE 5.12

PROJECTED GROWTH OF TOTAL AND SCHOOL AGE POPULATION BY SELECTED AGE GROUPS IN THE MIDWESTERN EDUCATION REGION: HIGH PROJECTION

Age Group	1971	1976		1981		1986	
	Number	Number	% Change	Number	% Change	Number	% Change
Midwestern Region							
5-13	132390	129932	- 1.86	132394	1.89	153702	16.15
14-17	56795	61989	9.15	64048	3.32	60559	- 5.45
18-24	88100	101385	15.08	112868	11.33	116554	3.26
All ages	717324	804270	12.12	909970	13.14	1031849	13.39
Brant							
5-13	17880	16368	- 8.46	14364	-12.24	15349	6.86
14-17	7540	8063	6.94	8023	- 0.48	6475	-19.30
18-24	11610	12926	8.12	13987	8.12	13856	- 0.93
All ages	96910	102743	6.02	109548	6.62	117020	6.82
Bruce							
5-13	9095	8893	- 2.23	8581	- 3.52	9811	14.35
14-17	4005	4403	9.94	4590	4.25	4076	-11.20
18-24	4665	6010	28.81	7037	17.09	7214	2.52
All ages	47480	52784	11.17	58988	11.75	66453	12.66
Grey:							
5-13	11585	11257	- 2.84	10967	- 2.55	12567	14.56
14-17	5495	5408	- 1.58	5559	2.77	4933	-11.25
18-24	7250	8931	23.17	9274	3.85	9391	1.27
All ages	66205	71445	7.91	78181	9.43	86118	10.15
Oxford							
5-13	15285	13214	13.54	11919	- 9.81	13338	11.91
14-17	6520	7101	8.91	6479	- 8.77	5285	-18.40
18-24	9020	11041	22.41	12188	10.40	11225	- 7.90
All ages	80380	84672	5.34	90029	6.33	96176	6.83
Perth							
5-13	11845	10252	-13.47	9502	- 7.31	10472	10.22
14-17	5140	5551	8.00	4896	-11.78	4233	-13.56
18-24	7135	8830	23.74	9574	8.44	8661	- 9.56
All ages	63055	66418	5.33	70621	6.33	75399	6.77
Waterloo							
5-13	46420	49717	7.10	54902	10.43	64988	18.37
14-17	19085	21514	12.73	24445	13.62	25262	3.34
18-24	34950	37126	6.23	41954	13.00	46919	11.83
All ages	254884	299788	17.62	353296	17.85	413969	17.17
Wellington							
5-13	20280	20230	- 0.25	22159	9.55	27178	22.65
14-17	9010	9950	10.43	10054	1.06	10295	2.39
18-24	13470	16523	22.67	18855	14.11	19287	2.29
All ages	108410	126420	16.61	149303	18.10	176710	18.36

Source: Detailed data in Section C.

TABLE 5.13

PROJECTED GROWTH OF TOTAL AND SCHOOL AGE POPULATION BY SELECTED AGE GROUPS IN THE MIDWESTERN EDUCATION REGION: LOW PROJECTION

Age Group	1971	1976		1981		1986	
	Number	Number	% Change	Number	% Change	Number	% Change
Midwestern Region							
5-13	132390	119731	- 9.56	110250	- 7.92	117467	6.55
14-17	56795	58841	3.60	56192	- 4.50	48002	-14.57
18-24	88100	96759	9.83	102299	5.73	97677	- 4.52
All ages	717324	750037	4.56	787877	5.04	827365	5.01
Brant							
5-13	17880	15714	-12.11	13246	-15.71	13887	4.84
14-17	7540	7892	4.67	7555	- 4.27	5817	-23.00
18-24	11610	12977	11.77	13765	6.07	13175	- 4.29
All ages	96910	100004	3.19	103804	3.80	107938	3.98
Bruce							
5-13	9095	7665	-15.72	6453	- 4.29	7230	12.04
14-17	4005	4108	2.57	3717	- 9.52	2777	-25.29
18-24	4665	6478	38.86	7179	10.82	6516	- 9.23
All ages	47480	48494	2.14	50227	3.57	52521	4.57
Grey							
5-13	11585	10313	-10.98	9230	-10.50	10208	10.60
14-17	5495	5174	- 5.84	4896	- 5.37	3926	-19.81
18-24	7250	9105	25.59	9110	0.05	8534	- 6.32
All ages	66205	67737	2.31	70272	3.74	73232	4.21
Oxford							
5-13	15285	12795	-16.29	11191	-12.54	12399	10.79
14-17	6520	6984	7.12	6181	-11.50	4854	-21.47
18-24	9020	11086	22.90	12062	8.80	10812	-10.36
All ages	80380	82938	3.18	86465	4.25	90521	4.69
Perth							
5-13	11845	10015	-15.45	9069	- 9.45	9891	9.06
14-17	5140	5471	6.44	4722	-13.69	3973	-15.86
18-24	7135	8736	22.44	9342	6.94	8282	-11.35
All ages	63055	65253	3.49	68165	4.46	71487	4.87
Waterloo							
5-13	46420	45311	- 2.39	44087	- 2.70	45455	3.10
14-17	19085	20040	5.00	20859	4.09	19319	- 7.38
18-24	34950	33185	- 5.05	34854	5.03	35726	2.50
All ages	254884	271915	6.68	288946	6.26	305068	5.58
Wellington							
5-13	20280	17918	-11.65	16974	- 5.27	18396	8.38
14-17	9010	9172	1.80	8263	- 9.91	7336	-11.22
18-24	13470	15191	12.78	15988	5.25	14632	- 8.48
All ages	108410	113695	4.87	119997	5.54	126597	5.50

Source: Detailed data in Section C.

TABLE 5.14

PROJECTED GROWTH OF TOTAL AND SCHOOL AGE POPULATION BY SELECTED AGE GROUPS IN THE NIAGARA EDUCATION REGION: HIGH PROJECTION

Age Group	1971	1976		1981		1986	
	Number	Number	% Change	Number	% Change	Number	% Change
Niagara Region							
5-13	152875	135121	-11.61	122015	-10.74	129340	6.00
14-17	66060	69793	5.65	64111	- 8.14	54059	-15.68
18-24	99510	122826	23.43	120598	- 1.81	111708	- 7.37
All ages	836374	875771	4.71	919403	4.98	964941	4.95
Haldimand							
5-13	6615	6232	- 5.79	5682	- 8.82	6288	10.67
14-17	2945	3100	5.26	3186	2.77	2688	-15.66
18-24	3545	4628	30.55	5158	11.45	5193	0.68
All ages	32765	35899	9.57	39443	9.87	43422	10.09
Niagara							
5-13	65700	58471	-11.00	53199	- 9.02	56851	6.86
14-17	28515	30187	5.86	27916	- 7.52	23806	-14.72
18-24	39935	47367	18.61	51039	7.75	47635	- 6.67
All ages	347289	367717	5.88	390127	6.09	413987	6.12
Norfolk							
5-13	9815	9144	- 6.84	8611	- 5.83	9220	7.07
14-17	4565	4596	0.68	4361	- 5.11	3959	- 9.22
18-24	6110	7559	23.72	7928	4.88	7455	- 5.97
All ages	54080	57923	7.11	62293	7.54	67055	7.64
Wentworth							
5-13	70745	61275	-13.39	54522	-11.02	56982	4.51
14-17	30035	31910	6.24	28649	-10.22	23607	-17.60
18-24	49920	53271	6.71	56473	6.01	51425	- 8.94
All ages	402239	414228	2.98	427537	3.21	440474	3.03

Source: Detailed data in Section C.

TABLE 5.15

PROJECTED GROWTH OF TOTAL AND SCHOOL AGE POPULATION BY SELECTED AGE GROUPS IN THE NIAGARA EDUCATION REGION: LOW PROJECTION

Age Group	1971	1976		1981		1986	
	Number	Number	% Change	Number	% Change	Number	% Change
Niagara Region							
5-13	152875	133248	-12.84	118804	-10.84	125484	5.62
14-17	66060	69301	4.91	62789	- 9.40	52069	-17.07
18-24	99510	113151	13.71	120232	6.26	110100	- 8.43
All ages	836374	868717	3.87	905017	4.18	942145	4.10
Haldimand							
5-13	6615	5679	-14.15	4738	-16.57	5082	7.26
14-17	2945	2963	0.61	2789	- 5.87	2114	-24.20
18-24	3545	4801	35.43	5147	7.21	4816	- 6.43
All Ages	32765	33941	3.59	35403	4.31	36976	4.44
Niagara							
5-13	65700	56571	-13.89	50013	-11.59	53350	6.67
14-17	28515	29782	4.44	26698	-10.35	21907	-17.94
18-24	39935	48494	21.43	51730	6.67	47025	- 9.09
All ages	347289	361503	4.09	377840	4.52	395000	4.54
Norfolk							
5-13	9815	8620	-12.18	7694	-10.74	8113	5.44
14-17	4565	4465	- 2.19	4005	-10.30	3396	-15.21
18-24	6110	7659	25.35	7844	2.41	7005	-10.70
All ages	54080	55860	3.29	58045	3.91	60308	3.90
Wentworth							
5-13	70745	62379	-11.83	56359	- 9.65	58939	4.58
14-17	30035	32091	6.84	29297	- 8.71	24652	-15.85
18-24	49920	52196	4.56	55510	6.35	51254	- 7.67
All ages	402239	417408	3.77	433725	3.91	449857	3.72

Source: Detailed data in Section C.

TABLE 5.16

PROJECTED GROWTH OF TOTAL AND SCHOOL AGE POPULATION BY SELECTED AGE GROUPS IN THE CENTRAL EDUCATION REGION:

HIGH PROJECTION

Age Group	1971	1976		1981		1986	
	Number	Number	% Change	Number	% Change	Number	% Change
Central Region							
5-13	555355	556824	0.26	592000	6.32	695909	17.55
14-17	223210	267210	19.71	280418	4.94	279470	- 0.34
18-24	393645	428533	8.86	514067	19.96	550627	7.11
All ages	3180490	3645790	14.63	4213531	15.57	4909710	16.52
Dufferin							
5-13	4010	4672	16.51	5782	23.76	8014	38.60
14-17	1840	2124	15.43	2459	15.77	3034	23.38
18-24	2140	3554	66.07	4455	25.35	5016	12.59
All ages	21180	27228	28.56	35943	32.01	47998	33.54
Durham							
5-13	9590	8553	-10.81	7298	-14.67	7546	3.40
14-17	4210	4502	6.94	4179	- 7.17	3438	-17.73
18-24	5045	6383	26.52	7087	11.03	6607	- 6.77
All ages	47595	50344	5.78	53324	5.92	56773	6.47
Haliburton							
5-13	1525	1671	9.57	1822	9.04	1974	8.29
14-17	760	845	11.18	804	- 4.85	994	23.63
18-24	885	1033	16.72	1219	18.01	1247	2.30
All ages	9070	10636	17.27	12425	16.82	14494	16.65
Halton							
5-13	40330	42643	5.73	44355	4.01	51258	15.56
14-17	15515	20513	32.31	22921	11.74	22538	- 1.67
18-24	20030	26301	31.31	35504	35.00	39544	11.38
All ages	190624	235243	23.41	287910	22.39	351473	22.08
Ontario							
5-13	40655	39300	- 3.33	36286	- 7.67	39723	9.47
14-17	15535	19171	23.41	19913	3.87	17199	-13.63
18-24	20930	27363	30.74	34259	25.20	35987	5.04
All ages	196144	222005	13.18	251620	13.34	285989	13.66
Peel							
5-13	55360	73464	32.70	97388	32.57	137679	41.37
14-17	18885	31440	66.48	43424	38.12	55036	26.74
18-24	29160	42808	46.80	71000	65.86	100547	41.61
All ages	258865	389089	50.31	583032	49.85	870933	49.38

Table 5.16 (cont'd)

Age Group	1971	1976		1981		1986	
	Number	Number	$ Change	Number	$ Change	Number	$ Change
Simcoe							
5-13	32960	32913	- 0.14	35221	7.01	42029	19.33
14-17	14740	16237	10.16	16801	3.47	16817	0.09
18-24	20535	23064	12.32	25907	12.33	26334	1.64
All ages	171294	197389	15.23	228823	15.92	265028	15.82
Victoria							
5-13	6315	6084	- 3.66	5953	- 2.15	6852	15.10
14-17	2750	3141	14.22	3187	1.46	2982	- 6.43
18-24	3340	3872	15.93	4524	16.84	4459	- 1.44
All ages	34160	37951	11.10	42284	11.42	47316	11.90
York (includes Toronto)							
5-13	364610	347522	- 4.69	357896	2.98	400835	12.00
14-17	148975	169238	13.60	166730	- 1.48	157431	- 5.58
18-24	291580	294156	0.88	330109	12.22	330887	0.24
All ages	2251555	2475917	9.96	2718169	9.78	2969704	9.25

Source: Detailed data in Section C.

TABLE 5.17

PROJECTED GROWTH OF TOTAL AND SCHOOL AGE POPULATION BY SELECTED AGE GROUPS IN THE CENTRAL EDUCATION REGION: LOW PROJECTION

Age Group	1971	1976		1981		1986	
	Number	Number	% Change	Number	% Change	Number	% Change
Central Region							
5-13	555355	506649	8.77	472670	- 6.71	480446	1.64
14-17	223210	248701	11.42	236603	- 4.86	207657	-12.23
18-24	393645	385927	- 1.96	427653	10.81	412174	- 3.62
All ages	3180490	3335335	4.87	3480483	4.35	3612055	3.78
Dufferin							
5-13	4010	3635	- 9.35	3349	- 7.87	3611	7.82
14-17	1840	1794	- 2.50	1636	- 8.81	1510	- 7.70
18-24	2140	3022	41.21	3198	5.82	2865	-10.41
All ages	21180	22033	4.03	23154	5.09	24325	5.06
Durham							
5-13	9590	7979	-16.80	6500	-18.54	7014	7.91
14-17	4210	4399	4.49	3828	-12.98	2905	-24.11
18-24	5045	6946	37.70	7618	9.66	6761	-11.25
All ages	47595	49016	2.99	51064	4.18	53577	4.92
Haliburton							
5-13	1525	1292	-15.28	1130	-12.54	1178	4.25
14-17	760	747	- 1.71	557	-25.44	518	- 7.00
18-24	885	1213	37.06	1288	6.18	1067	-17.16
All ages	9070	9196	1.39	9385	2.06	9614	2.44
Halton							
5-13	40330	34654	-14.07	28780	-16.95	29047	0.93
14-17	15515	18230	17.50	16709	- 8.34	12915	-22.71
18-24	20030	25892	29.27	31399	21.27	29158	- 7.14
All ages	190624	201022	5.45	211982	5.45	223544	5.45
Ontario							
5-13	40655	35927	-11.63	29773	-17.13	29707	- 0.22
14-17	15535	18111	16.58	17277	- 4.60	13428	-22.28
18-24	20930	26195	25.15	31016	18.40	30057	- 3.09
All ages	196144	205674	4.86	215842	4.94	226685	5.02
Peel							
5-13	55360	51825	- 6.38	44647	-13.85	41676	- 6.65
14-17	18885	24464	29.54	24235	- 0.94	20513	-15.36
18-24	29160	32195	10.41	41446	28.73	42353	2.19
All ages	258865	276694	6.89	293017	5.90	309471	5.61

Table 5.17 (cont'd)

	1971	1976		1981		1986	
	Number	Number	% Change	Number	% Change	Number	% Change
Simcoe							
5-13	32960	27796	-15.67	25274	- 9.07	28429	12.48
14-17	14740	14968	1.55	13200	-11.80	10835	-17.92
18-24	20535	24855	21.04	26058	4.84	23049	-11.55
All ages	171294	178249	4.06	187127	4.98	196628	5.08
Victoria							
5-13	6315	5047	-20.08	4170	-17.36	4719	13.14
14-17	2750	2900	5.45	2471	-14.83	1850	-25.10
18-24	3340	4555	36.38	4999	9.75	4304	-13.90
All ages	34160	34476	0.92	35254	2.26	36366	3.15
York (includes Toronto)							
5-13	364610	338494	- 7.16	329047	- 2.79	335066	1.83
14-17	148975	163088	9.47	156690	- 3.92	143182	- 8.62
18-24	291580	261052	-10.47	280631	7.50	272560	- 2.88
All ages	2251555	2358989	4.77	2453667	4.01	2531859	3.19

Source: Detailed data in Section C.

TABLE 5.18

PROJECTED GROWTH OF TOTAL AND SCHOOL AGE POPULATION BY SELECTED AGE GROUPS IN THE EASTERN EDUCATION REGION: HIGH PROJECTION

Age Group	1971	1976		1981		1986	
	Number	Number	% Change	Number	% Change	Number	% Change
Eastern Region							
5-13	86330	75644	-12.38	68094	- 9.98	72236	6.08
14-17	38320	39793	3.84	36330	- 8.70	30269	-16.68
18-24	54140	60450	11.65	64302	6.37	59287	- 7.80
All ages	460784	480873	4.36	503450	4.70	527631	4.80
Frontenac							
5-13	18205	15346	-15.70	14032	- 8.56	14654	4.43
14-17	7940	8139	2.51	7059	-13.27	5867	-16.89
18-24	13760	13673	- 0.63	14224	4.03	12510	-12.05
All ages	101665	103933	2.23	105206	2.19	107945	1.64
Grenville							
5-13	4585	4091	-10.77	3255	-20.44	3070	- 5.68
14-17	2035	2091	2.75	1958	- 6.36	1522	-22.27
18-24	2590	2987	15.33	3283	9.91	3107	- 5.36
All ages	24365	24849	1.99	25267	1.68	25675	1.61
Hastings							
5-13	19875	16633	-16.31	14804	-11.00	15828	6.92
14-17	8770	9352	6.64	8015	-14.30	6617	-17.44
18-24	11545	13228	14.58	14159	7.04	12327	-12.94
All ages	99715	103603	3.90	107975	4.22	112730	4.40
Leeds							
5-13	8995	7787	-13.43	6801	-12.66	7009	3.06
14-17	4060	3940	- 2.96	3684	- 6.50	2945	-20.06
18-24	5500	6748	22.69	6918	2.52	6373	- 7.88
All ages	50100	51112	2.02	52157	2.04	53127	1.86
Lennox & Addington							
5-13	5685	5730	0.79	5291	- 7.66	5633	6.46
14-17	2205	2726	23.63	2904	6.53	2551	-12.15
18-24	2940	3726	26.73	4556	22.28	4987	9.46
All ages	28360	31845	12.29	35807	12.44	40465	13.01
Northumberland							
5-13	9140	8378	- 8.34	7472	-10.81	8411	12.57
14-17	4145	4212	1.62	4262	1.19	3433	-19.45
18-24	5180	6117	18.09	6642	8.58	6501	- 2.12
All ages	47975	51362	7.06	55473	8.00	60148	8.43

Table 5.18 (cont'd)

Age Group	1971	1976		1981		1986	
	Number	Number	% Change	Number	% Change	Number	% Change
Peterborough							
5-13	15930	14583	- 8.45	13927	- 4.50	15188	9.05
14-17	7385	7533	2.00	7045	- 6.48	6228	-11.60
18-24	10615	11562	8.92	11991	3.71	11445	- 4.55
All ages	88000	94073	6.90	100978	7.34	108388	7.34
Prince Edward							
5-13	3915	3096	-20.92	2511	-18.89	2442	- 2.75
14-17	1780	1799	1.12	1404	-22.00	1103	-21.44
18-24	2010	2410	19.90	2529	4.94	2037	-19.45
All ages	20605	20099	- 2.46	19589	- 2.54	19155	- 2.22

Source: Detailed data in Section C.

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TABLE 5.19

PROJECTED GROWTH OF TOTAL AND SCHOOL AGE POPULATION BY SELECTED AGE GROUPS IN THE EASTERN EDUCATION REGION: LOW PROJECTION

Age Group	1971	1976		1981		1986	
	Number	Number	% Change	Number	% Change	Number	% Change
Eastern Region							
5-13	86330	72852	-15.61	64204	-11.87	69825	8.75
14-17	38320	39431	2.90	34689	-12.03	27689	-20.18
18-24	54140	64510	19.15	68511	6.20	61369	-10.42
All ages	460784	476399	3.39	496146	4.14	517256	4.25
Frontenac							
5-13	18205	15810	-13.16	14996	- 5.15	16186	7.93
14-17	7940	8278	4.26	7385	-10.79	6362	-13.85
18-24	13760	13770	0.07	14550	5.66	13135	- 9.72
All ages	101665	106412	4.67	111442	4.73	116159	4.23
Grenville							
5-13	4585	3975	-13.30	3127	-21.33	3086	- 1.31
14-17	2035	2089	2.65	1906	- 8.76	1434	-24.76
18-24	2590	3260	25.87	3605	10.58	3366	- 6.63
All ages	24365	24839	1.94	25430	2.38	26114	2.69
Hastings							
5-13	19875	15905	-19.97	13912	-12.53	15740	13.14
14-17	8770	9306	6.11	7656	-17.73	5996	-21.68
18-24	11545	14799	28.18	15968	7.91	13542	-15.19
All ages	99715	103332	3.63	108371	4.88	114013	5.21
Leeds							
5-13	8995	7900	-12.17	7038	-10.92	7404	5.20
14-17	4060	3974	- 2.12	3767	- 5.21	3066	-18.58
18-24	5500	6780	23.27	7012	3.42	6543	- 6.69
All ages	50100	51696	3.19	53416	3.33	55154	3.25
Lennox & Addington							
5-13	5685	5102	-10.25	4202	-17.64	4265	1.50
14-17	2205	2561	16.14	2441	- 4.69	1880	-22.98
18-24	2940	3736	27.07	4314	15.47	4260	- 1.25
All ages	28360	29323	3.40	30538	4.14	32001	4.79
Northumberland							
5-13	9140	7526	-17.66	6152	-18.26	6959	13.12
14-17	4145	4040	- 2.53	3694	- 8.56	2631	-28.78
18-24	5180	6815	31.56	7197	5.60	6501	- 9.67
All ages	47975	48923	1.98	50684	3.60	52746	4.07

Table 5.19 (cont'd)

Age Group	1971	1976		1981		1986	
	Number	Number	% Change	Number	% Change	Number	% Change
Peterborough							
5-13	15930	13556	-14.90	12192	-10.06	13313	9.19
14-17	7385	7329	- 0.76	6398	-12.70	5198	-18.76
18-24	10615	12416	16.97	12623	1.67	11366	- 9.96
All ages	88000	90994	3.40	94768	4.15	98744	4.20
Prince Edward							
5-13	3915	3077	-21.41	2586	-15.96	2873	11.10
14-17	1780	1853	4.10	1442	-22.18	1123	-22.12
18-24	2010	2935	46.02	3242	10.46	2657	-18.04
All ages	20605	20881	1.34	21499	2.96	22327	3.85

Source: Detailed data in Section C.

TABLE 5.20

PROJECTED GROWTH OF TOTAL AND SCHOOL AGE POPULATION BY SELECTED AGE GROUPS IN THE OTTAWA VALLEY EDUCATION REGION: HIGH PROJECTION

Age Group	1971	1976		1981		1986	
	Number	Number	% Change	Number	% Change	Number	% Change
Ottawa Valley Region							
5-13	141940	125394	-11.66	118541	- 5.47	135704	14.48
14-17	62295	67331	8.08	61888	- 8.08	53031	-14.31
18-24	95510	110552	15.75	122144	10.49	115058	- 5.80
All ages	746729	817306	9.45	902342	10.40	998168	10.62
Dundas							
5-13	3390	3018	-10.97	2487	-17.59	2191	-11.90
14-17	1390	1530	10.07	1345	-12.09	1191	-11.45
18-24	1820	2088	14.72	2286	9.48	2069	- 9.49
All ages	17540	17615	0.43	17561	- 0.31	17457	- 0.59
Glengarry							
5-13	3795	3281	-13.54	2600	-20.76	2670	2.73
14-17	1680	1731	3.04	1653	- 4.51	1172	-29.10
18-24	1945	2413	24.06	2553	5.80	2427	- 4.93
All ages	18545	18870	1.75	19327	2.42	19799	2.44
Lanark							
5-13	7510	6429	-14.39	5824	- 9.41	6177	6.06
14-17	3765	3483	- 7.49	3037	-12.80	2555	-15.87
18-24	5210	5935	13.92	5652	- 4.77	4949	-12.44
All ages	41995	43083	2.59	44586	3.49	46161	3.53
Ottawa-Carleton							
5-13	86115	79565	- 7.61	80695	1.42	97080	20.30
14-17	37235	41924	12.59	39880	- 4.88	36417	- 8.68
18-24	63670	73199	14.97	83366	13.89	81298	- 2.48
All ages	472524	539693	14.21	620810	15.03	712415	14.76
Prescott							
5-13	5900	4879	-17.30	3862	-20.84	4053	4.95
14-17	2800	2660	- 5.00	2453	- 7.78	1733	-29.35
18-24	3055	4118	34.79	4133	0.36	3676	-11.06
All ages	27810	28551	2.66	29375	2.89	30323	3.23
Renfrew							
5-13	19230	15245	-20.72	11870	-22.14	11310	- 4.72
14-17	8370	8570	2.39	7105	-17.09	5202	-26.78
18-24	10190	11931	17.08	12607	5.67	10533	-16.45
All ages	90815	89429	- 1.53	87772	- 1.85	86007	- 2.01

Table 5.20 (cont'd)

Age Group	1971	1976		1981		1986	
	Number	Number	% Change	Number	% Change	Number	% Change
Russell							
5-13	3685	3393	- 7.92	2928	-13.70	3112	6.28
14-17	1560	1673	7.24	1757	5.02	1322	-24.76
18-24	1875	2255	20.27	2540	12.64	2586	1.81
All ages	16410	17730	8.04	19097	7.71	20608	7.91
Stormont							
5-13	12315	9584	-22.18	8275	-13.66	9112	10.11
14-17	5495	5759	4.80	4659	-19.10	3440	-26.16
18-24	7745	8614	11.22	9007	4.56	7521	-16.50
All ages	61090	62334	2.04	63815	2.38	65396	2.48

Source: Detailed data in Section C.

TABLE 5.21

PROJECTED GROWTH OF TOTAL AND SCHOOL AGE POPULATION BY SELECTED AGE GROUPS IN THE OTTAWA VALLEY EDUCATION REGION: LOW PROJECTION

Age Group	1971	1976		1981		1986	
	Number	Number	% Change	Number	% Change	Number	% Change
Ottawa Valley Region							
5-13	141940	119045	-16.13	104894	-11.89	112374	7.13
14-17	62295	65014	4.36	56798	-12.64	45409	-20.05
18-24	95510	106127	11.12	112700	6.19	100361	-10.95
All ages	746729	777309	4.09	811968	4.46	846307	4.23
Dundas							
5-13	3390	2967	-12.48	2493	-15.98	2455	- 1.52
14-17	1390	1551	11.58	1344	-13.35	1169	-13.02
18-24	1820	2380	30.77	2668	12.10	2416	- 9.44
All ages	17540	17943	2.30	18463	2.90	19081	3.35
Glengarry							
5-13	3795	3122	-17.73	2427	-22.26	2689	10.79
14-17	1680	1726	2.74	1573	- 8.86	1053	-33.06
18-24	1945	2773	42.57	2966	6.96	2733	- 7.86
All ages	18545	18854	1.67	19549	3.69	20339	4.04
Lanark							
5-13	7510	6209	-17.32	5522	-11.06	6015	8.93
14-17	3765	3461	- 8.07	2922	-15.57	2360	-19.23
18-24	5210	6367	22.21	6070	- 4.66	5174	-14.76
All ages	41995	42848	2.03	44240	3.24	45667	3.23
Ottawa-Carleton							
5-13	86115	73848	-14.24	67077	- 9.17	70760	5.49
14-17	37235	39265	5.45	34796	-11.38	29064	-16.47
18-24	63670	64185	0.81	68024	5.98	61531	- 9.54
All ages	472524	494150	4.58	516448	4.51	537075	3.99
Prescott							
5-13	5900	4738	-19.69	3735	-21.17	4176	11.81
14-17	2800	2668	- 4.71	2394	-10.27	1634	-31.75
18-24	3055	4585	50.08	4674	1.94	4088	-12.54
All ages	27810	28765	3.43	30126	4.73	31669	5.12
Renfrew							
5-13	19230	15536	-19.21	12830	-17.42	13970	8.88
14-17	8370	8892	6.24	7517	-15.46	5631	-25.09
18-24	10190	13901	36.42	15470	11.29	13349	-13.71
All ages	90815	94186	3.71	98705	4.80	103760	5.12

Table 5.21 (cont'd)

Age Group	1971	1976		1981		1986	
	Number	Number	% Change	Number	% Change	Number	% Change
Russell							
5-13	3685	3082	-16.36	2473	-19.76	2700	9.18
14-17	1560	1621	3.91	1553	- 4.19	1048	-32.52
18-24	1875	2564	36.75	2837	10.65	2689	- 5.22
All ages	16410	17097	4.19	17957	5.03	18972	5.65
Stormont							
5-13	12315	9541	-22.53	8337	-12.62	9608	15.24
14-17	5495	5830	6.10	4699	-19.40	3450	-26.58
18-24	7745	9371	20.99	9991	6.62	8383	-16.09
All ages	61090	63465	3.89	66478	4.75	69742	4.91

Source: Detailed data in Section C.

Appendix

POPULATION IN ONTARIO COUNTIES, DISTRICTS AND REGIONAL AREAS, BY SUBDIVISION, 1971

Subdivision	Total
Ontario	7,703,106
Algoma(1)	121,937
Day & Bright Additional	251
Elliot Lake	9,093
Hilton	94
Jocelyn	104
Johnson	599
Laird	689
Macdonald, Meredith & Aberdeen Additional	1,305
Michipicoten	4,874
Plummer Additional	533
Prince	666
St. Joseph	861
Tarbutt & Tarbutt Additional	254
Thessalon	785
Thompson	75
White River I.D.	953
Wicksteed	1,825
Unorganized – Non municipalisé	9,773
Indian Reserves – Réserves indiennes	1,998
Cities – Cités:	
Sault Ste. Marie	80,332
Towns – Villes:	
Blind River	3,450
Bruce Mines	505
Thessalon	1,879
Villages:	
Hilton Beach	165
Iron Bridge	874
Brant	96,767
Brantford	9,380
Burford	5,799
Dumfries, South	3,961
Oakland	1,399
Onondaga	1,349
Indian Reserves – Réserves indiennes	3,975
Cities – Cités:	
Brantford	64,421
Towns – Villes:	
Paris	6,483
Bruce(1)	47,385
Albemarle	686
Amabel	2,043
Arran	1,397
Brant	3,242
Bruce	1,547
Carrick	2,516
Culross	1,732
Eastnor	888
Elderslie	1,253
Greenock	1,639
Huron	1,585
Kincardine	1,916
Kinloss	1,217
Lindsay	319
St. Edmunds	551
Saugeen	1,089
Indian Reserves – Réserves indiennes	958
Towns – Villes:	
Chesley	1,693
Kincardine	3,239
Port Elgin	2,855
Southampton	2,036
Walkerton	4,479
Wiarton	2,222
Villages:	
Hepworth	372
Lion's Head	467
Lucknow	1,047
Mildmay	963
Paisley	793
Ripley	448
Tara	643
Teeswater	983
Tiverton	567
Cochrane	95,836
Black River – Matheson(1)	3,182
Fauquier	1,509
Glackmeyer	815
Kendrey	1,139
Kingham I.D. (part)(2)	22
Mountjoy	2,817
Playfair	816
Shackleton & Michin	1,005
Tisdale	8,147
Whitney	1,967
Unorganized – Non municipalisé	14,327
Indian Reserves – Réserves indiennes	1,738
Towns – Villes:	
Cochrane	4,965
Hearst	3,501
Iroquois Falls(3)	7,271
Kapuskasing	12,834
Smooth Rock Falls	1,239
Timmins	28,542
Dufferin	21,200
Amaranth	1,957
Garafraxa, East	1,214
Luther, East	849
Melancthon	2,096
Mono	2,735
Mulmur	1,581
Towns – Villes:	
Orangeville	8,074
Villages:	
Grand Valley	904
Shelburne	1,790
Dundas	17,457
Matilda	3,050
Mountain	2,433
Williamsburgh	1,046
Winchester	2,822
Villages:	
Chesterville	1,252
Iroquois	1,224
Morrisburg	2,055
Winchester	1,575
Durham	47,494
Cartwright	2,219
Cavan	2,830
Clarke	5,541
Darlington	10,768
Hope	3,068
Manvers	2,399
Towns – Villes:	
Bowmanville	8,947
Port Hope	8,872
Villages:	
Millbrook	908
Newcastle	1,942
Elgin	66,608
Aldborough	3,213
Bayham	4,126
Dorchester, South	1,567
Dunwich	2,265
Malahide	4,713
Southwold	4,478
Yarmouth	8,823
Cities – Cités:	
St. Thomas	25,545
Towns – Villes:	
Aylmer	4,755
Villages:	
Belmont	798
Dutton	878
Port Burwell	700
Port Stanley	1,725
Rodney	1,016
Springfield	522
Vienna	390
West Lorne	1,094
Essex(1)	306,399
Anderdon	4,667
Colchester North	3,062
Colchester South	4,724
Gosfield North	3,454
Gosfield South	6,306
Maidstone	7,734
Malden	3,151
Mersea	9,078
Pelee	298
Rochester	3,640
Sandwich South	4,842
Sandwich West	12,109
Tilbury North	2,648
Tilbury West	1,704
Cities – Cités:	
Windsor	203,300

Subdivision	Total
Towns - Villes:	
Amherstburg	5,169
Belle River(2)	2,877
Essex	4,002
Harrow	1,971
Kingsville	4,076
Leamington	10,435
Tecumseh	5,165
Villages:	
St. Clair Beach	1,98[illegible]
rontenac	101,692
Barrie	499
Bedford	749
Clarendon & Miller	461
Hinchinbrooke	1,134
Howe Island	157
Kennebec	724
Kingston	17,387
Loughborough	2,490
Olden	715
Oso	1,204
Palmerston & North & South Canonto	308
Pittsburgh	9,443
Portland	3,650
Storrington	2,512
Wolfe Island	1,212
Cities - Cités:	
Kingston	59,047
Glengarry	18,480
Charlottenburgh	5,202
Kenyon	2,575
Lancaster	2,945
Lochiel	3,055
Towns - Villes:	
Alexandria	3,240
Villages:	
Lancaster	617
Maxville	846
renville	24,316
Augusta	5,540
Edwardsburgh	3,914
Gower, South	745
Oxford-on-Rideau	2,612
Wolford	1,132
Towns - Villes:	
Kemptville	2,413
Prescott	5,165
Villages:	
Cardinal	1,865
Merrickville	930
rey(1)	66,403
Artemesia	1,709
Bentinck	2,357
Collingwood	2,195
Derby	2,261
Egremont	1,949
Euphrasia	1,498
Glenelg	1,223
Holland	1,905
Keppel	2,105
Normanby	2,519
Osprey	1,706
Proton	1,701
St. Vincent	1,697
Sarawak	1,624
Sullivan	2,128
Sydenham	2,436
Cities - Cités:	
Owen Sound	18,469
Towns - Villes:	
Durham	2,448
Hanover	5,063
Meaford	4,045
Thornbury	1,220
Villages:	
Chatsworth	399
Dundalk	1,022
Flesherton	524
Markdale	1,236
Neustadt	579
Shallow Lake	385
Haldimand	32,673
Canborough	1,313
Cayuga, North	1,557
Cayuga, South	742
Dunn	1,264
Moulton	2,815
Oneida	1,707
Rainham	1,999
Seneca	2,493
Sherbrooke	454
Walpole	4,447
Indian Reserves - Réserves indiennes	782
Towns - Villes:	
Caledonia	3,183
Dunnville	5,576
Villages:	
Cayuga	1,084
Hagersville	2,292
Jarvis	965
Haliburton	9,081
Anson, Hindon & Minden ...	2,027
Bicroft I.D.	596
Cardiff	415
Dysart, et al	3,063
Glamorgan	444
Lutterworth	421
Monmouth	628
Sherborne, etc.	357
Snowdon	458
Stanhope	672
Halton(1)	190,469
Esquesing	9,416
Nassagaweya	3,445
Towns - Villes:	
Acton	5,031
Burlington	87,023
Georgetown	17,053
Milton	7,018
Oakville	61,483
Hastings(1)	99,393
Bangor, McClure & Wicklow	812
Carlow	358
Dungannon	882
Elzevir & Grimsthorpe	664
Faraday	1,258
Herschel	591
Hungerford	2,292
Huntingdon	1,635
Limerick	233
Madoc	1,500
Marmora & Lake	1,401
Mayo	362
Monteagle	1,039
Rawdon	2,115
Sidney	12,199
Thurlow	5,630
Tudor & Cashel	488
Tyendinaga	2,522
Wollaston	552
Indian Reserves - Réserves indiennes	946
Cities - Cités:	
Belleville	35,128
Towns - Villes:	
Deseronto	1,863
Trenton	14,589
Villages:	
Bancroft	2,276
Deloro	255
Frankford	1,862
Madoc	1,353
Marmora	1,350
Stirling	1,500
Tweed	1,738
Huron	52,951
Ashfield	1,703
Colborne	1,372
Goderich	2,097
Grey	1,897
Hay	1,983
Howick	3,001
Hullett	1,862
McKillop	1,573
Morris....................	1,607
Stanley	1,499
Stephen	3,802
Tuckersmith	2,915
Turnberry	1,414
Usborne	1,591
Wawanosh, East	1,093
Wawanosh, West	1,212
Towns - Villes:	
Clinton	3,154
Exeter	3,354
Goderich	6,813
Seaforth	2,134
Wingham	2,913
Villages:	
Bayfield	503
Blyth	814
Brussels	908
Hensall	970
Zurich	767
Kenora	53,230
Balmertown I.D.	1,839
Barclay I.D.	993
Ear Falls I.D.(1)	1,479
Ignace	817
Jaffray & Melick	3,101
Machin	1,106
Red Lake	2,170
Sioux Narrows I.D.	400
Unorganized - Non municipalisé	9,488

Subdivision	Total
Indian Reserves – Réserves indiennes	9,304
Towns – Villes:	
Dryden	6,939
Keewatin	2,112
Kenora	10,952
Sioux Lookout	2,530
Kent(1)	101,118
Camden	2,574
Chatham	7,231
Dover	4,423
Harwich	6,905
Howard	2,728
Orford	1,609
Raleigh	6,604
Romney	1,840
Tilbury East	3,009
Zone	1,119
Indian Reserves – Réserves indiennes	284
Cities – Cités:	
Chatham	35,317
Towns – Villes:	
Blenheim	3,490
Bothwell	810
Dresden	2,369
Ridgetown	2,836
Tilbury	3,580
Wallaceburg	10,550
Villages:	
Erieau	509
Erie Beach	222
Highgate	424
Thamesville	1,028
Wheatley	1,657
Lambton	114,314
Bosanquet	3,131
Brooke	2,015
Dawn	1,835
Enniskillen	3,022
Euphemia	1,275
Moore	6,893
Plympton	3,908
Sarnia	10,017
Sombra	4,082
Warwick	2,433
Indian Reserves – Réserves indiennes	2,462
Cities – Cités:	
Sarnia	57,644
Towns – Villes:	
Forest	2,355
Petrolia	4,044
Villages:	
Alvinston	702
Arkona	469
Courtright	590
Grand Bend	696
Oil Springs	570
Point Edward	2,773
Thedford	719
Watford	1,400
Wyoming	1,279
Lanark	42,259
Bathurst	2,072
Beckwith	1,712
Burgess, North	542
Dalhousie & North Sherbrooke	765
Darling	270
Drummond	1,639
Elmsley, North	1,568
Lanark	777
Lavant	203
Montague	4,459
Pakenham	1,156
Ramsay	1,915
Sherbrooke, South	482
Towns – Villes:	
Almonte	3,696
Carleton Place	5,020
Perth	5,537
Smiths Falls	9,585
Villages:	
Lanark	861
Leeds	50,093
Bastard & South Burgess	2,285
Crosby, North	638
Crosby, South	1,397
Elizabethtown	6,513
Elmsley, South	1,445
Escott, Front of	1,042
Kitley	1,728
Leeds & Lansdowne, Front of	3,428
Leeds & Lansdowne, Rear of	2,110
Yonge, Front of	1,576
Yonge & Escott, Rear of	986
Cities – Cités:	
Brockville	19,765
Towns – Villes:	
Gananoque	5,212
Villages:	
Athens	1,071
Newboro	296
Westport	601
Lennox & Addington	28,359
Adolphustown	514
Amherst Island	367
Camden East(1)	3,395
Denbigh, Abinger & Ashby	684
Ernestown	8,849
Fredericksburgh, North	2,274
Fredericksburgh, South	999
Kaladar, Anglesea & Effingham	1,263
Richmond	2,770
Sheffield	1,176
Towns – Villes:	
Napanee	4,638
Villages:	
Bath	810
Newburgh	620
Manitoulin	10,931
Assiginack	757
Barrie Island	109
Billings	398
Burpee	209
Carnarvon	922
Cockburn Island	–
Gordon	352
Howland	841
Rutherford & George Island	496
Sandfield	169
Tehkummah	453
Unorganized – Non municipalisé	791
Indian Reserves – Réserves indiennes	3,099
Towns – Villes:	
Gore Bay	770
Little Current	1,565
Middlesex	[illegible]
Adelaide	2,074
Biddulph	2,061
Caradoc	5,154
Delaware	2,265
Dorchester, North	6,382
Ekfrid	1,951
Lobo	3,846
London	5,995
McGillivray	1,715
Metcalfe	803
Mosa	1,332
Nissouri, West	3,207
Westminster	6,634
Williams, East	1,094
Williams, West	1,005
Indian Reserves – Réserves indiennes	1,414
Cities – Cités:	
London	223,222
Towns – Villes:	
Parkhill	1,167
Strathroy	6,592
Villages:	
Ailsa Craig	608
Glencoe	1,387
Lucan	1,178
Newbury	338
Wardsville	388
Muskoka(1)	31,938
Georgian Bay(2)	2,054
Lake of Bays(2)	1,729
Muskoka Lakes(2)	4,170
Indian Reserves – Réserves indiennes	165
Towns – Villes:	
Bracebridge(2)	6,903
Gravenhurst(2)	7,133
Huntsville(2)	9,784
Niagara(1)	347,328
Lincoln, West(2)	8,396
Wainfleet	5,486
Cities – Cités:	
Niagara Falls(2)	67,163
Port Colborne(2)	21,420
St. Catharines(2)	109,722
Welland(2)	44,397
Towns – Villes:	
Fort Erie(2)	23,113
Grimsby(2)	15,770
Lincoln(2)	14,247
Niagara-on-the-Lake(2)	12,552
Pelham(2)	9,997
Thorold(2)	15,065
Nipissing(1)	78,867

Subdivision	Total
Airy	958
Bonfield	966
Caldwell	1,858
Calvin	500
Cameron I. D.	136
Chisholm	895
Ferris, East	2,483
Field	893
Mattawan	82
Papineau	652
Springer	2,044
Temagami I.D. (2)	1,422
Unorganized — Non municipalisé	5,530
Indian Reserves — Réserves indiennes	297
Cities - Cités:	
North Bay(3)	49,187
Towns - Villes:	
Bonfield	694
Cache Bay	727
Mattawa	2,881
Sturgeon Falls	6,662
Norfolk	54,099
Charlotteville	6,046
Houghton	2,214
Middleton	4,180
Townsend	5,781
Walsingham, North	2,910
Walsingham, South	2,312
Windham	5,853
Woodhouse	3,450
Towns - Villes:	
Delhi	3,894
Port Dover	3,407
Simcoe	10,793
Waterford	2,403
Villages:	
Port Rowan	856
Northumberland(1)	48,162
Alnwick	713
Brighton	2,935
Cramahe	2,178
Haldimand	3,083
Hamilton	7,034
Monaghan, South	875
Murray	5,787
Percy	2,094
Seymour	2,985
Indian Reserves - Réserves indiennes	192
Towns - Villes:	
Campbellford	3,522
Cobourg	11,282
Villages:	
Brighton	2,956
Colborne	1,588
Hastings	938
Ontario	196,257
Brock	3,484
Mara	3,071
Pickering	31,734
Rama	1,100
Reach	3,810
Scott	2,562
Scugog	681
Thorah	1,549
Uxbridge	3,868
Whitby, East	3,407
Indian Reserves - Réserves indiennes	406
Cities - Cités:	
Oshawa	91,587
Towns - Villes:	
Ajax	12,515
Uxbridge	3,077
Whitby(1)	25,324
Villages:	
Beaverton	1,485
Cannington	1,083
Pickering	2,537
Port Perry	2,977
Ottawa — Carleton(1)	471,931
Cumberland	9,294
Fitzroy	2,357
Gloucester	37,145
Goulbourn	5,341
Gower, North	3,726
Huntley	2,278
March	5,822
Marlborough	1,167
Nepean	64,606
Osgoode	7,757
Torbolton	1,366
Cities - Cités:	
Ottawa	302,341
Vanier(2)	22,477
Villages:	
Richmond	2,122
Rockcliffe Park	2,138
Stittsville	1,994
Oxford(1)	80,349
Blandford	1,459
Blenheim	4,636
Dereham	5,323
Nissouri, East	3,352
Norwich, North	2,548
Norwich, South	3,146
Oxford, East	2,295
Oxford, North	1,774
Oxford, West	2,845
Zorra, East	5,213
Zorra, West	2,200
Cities - Cités:	
Woodstock	26,173
Towns - Villes:	
Ingersoll	7,783
Tillsonburg	6,608
Villages:	
Beachville	995
Embro	703
Norwich	1,806
Tavistock	1,490
Parry Sound	30,244
Armour	842
Carling	497
Chapman	314
Christie	318
Foley	1,160
Hagerman	347
Himsworth, North	2,248
Himsworth, South	1,230
Humphry	598
Joly	81
Machar	447
McDougall	2,225
McKellar	478
McMurrich	405
Nipissing	976
Perry	994
Ryerson	384
Strong	972
Unorganized — Non municipalisé	4,033
Indian Reserves — Réserves indiennes	657
Towns — Villes:	
Kearney	308
Parry Sound	5,842
Powassan	1,163
Trout Creek	586
Villages:	
Burk's Falls	891
Magnetawan	204
Rosseau	269
South River	1,052
Sundridge	723
Peel	259,402
Albion	4,711
Caledon	4,875
Chinguacousy	30,997
Toronto Gore	1,362
Towns — Villes:	
Brampton	41,211
Mississauga(1)	156,070
Port Credit	9,442
Streetsville	6,840
Villages:	
Bolton	2,984
Caledon East	910
Perth(1)	62,973
Blanshard	1,950
Downie	2,475
Easthope, North	2,168
Easthope, South	1,805
Ellice	2,865
Elma	3,655
Fullarton	1,550
Hibbert	1,562
Logan	2,263
Mornington	2,705
Wallace	2,402
Cities — Cités:	
Stratford	24,508
Towns — Villes:	
Listowel	4,677
Mitchell	2,545
St. Mary's	4,650
Villages:	
Milverton	1,193
Peterborough	87,804
Asphodel	1,576
Belmont & Methuen	1,919

Subdivision	Total
Burleigh Anstruther	999
Chandos	415
Douro	3,175
Dummer	1,634
Ennismore	1,503
Galway Cavendish	248
Harvey	1,078
Monaghan, North	1,035
Otonabee	4,301
Smith	6,572
Indian Reserves – Réserves indiennes	585
Cities – Cités:	
Peterborough	58,111
Villages:	
Havelock	1,225
Lakefield	2,245
Norwood	1,183
Prescott	27,832
Alfred	1,725
Caledonia	1,267
Hawkesbury, East	2,842
Hawkesbury, West	2,137
Longueuil	973
Plantagenet, North	2,037
Plantagenet, South	1,725
Towns – Villes:	
Hawkesbury	9,276
Vankleek Hill	1,691
Villages:	
Alfred	1,230
L'Orignal	1,405
Plantagenet	909
St. Isidore de Prescott	615
Prince Edward	20,640
Ameliasburgh	4,391
Athol	1,094
Hallowell	3,310
Hillier	1,505
Marysburgh, North	1,046
Marysburgh, South	920
Sophiasburgh	1,781
Towns – Villes:	
Picton	4,875
Villages:	
Bloomfield	730
Wellington	988
Rainy River	25,750
Alberton	646
Atikokan	6,087
Atwood	329
Blue	123
Chapple	967
Dilke	236
Emo	1,110
Kingsford I.D.	68
La Vallée	924
McCrosson & Tovell	282
Morley Patullo	605
Morson	177
Worthington	146
Unorganized – Non municipalisé	1,544
Indian Reserves – Réserves indiennes	1,363
Towns – Villes:	
Fort Frances	9,947
Rainy River	1,196
Renfrew	90,875
Admaston	1,331
Algona, North	511
Algona, South	334
Alice & Fraser	2,428
Bagot & Blithfield	1,051
Bromley	1,217
Brougham	206
Brudenell & Lyndoch	843
Grattan	1,275
Griffith & Matawatchan	328
Hagarty & Richards	1,391
Head, Clara & Maria	474
Horton	1,706
McNab	3,551
Pembroke	1,163
Petawawa	8,506
Radcliffe	780
Raglan	700
Rolph, Buchanan, Wylie & McKay	2,066
Ross	1,589
Sebastopol	804
Sherwood, Jones & Burns	1,528
Stafford	3,755
Westmeath	1,797
Wilberforce	1,405
Indian Reserves – Réserves indiennes	220
Cities – Cités:	
Pembroke(1)	16,544
Towns – Villes:	
Arnprior	6,016
Deep River	5,671
Renfrew	9,173
Villages:	
Barry's Bay	1,432
Beachburg	549
Braeside	522
Chalk River	1,094
Cobden	926
Eganville	1,395
Killaloe Station	810
Petawawa	5,784
Russell(1)	16,287
Cambridge	2,555
Clarence	4,589
Russell	4,157
Towns – Villes:	
Rockland	3,649
Villages:	
Casselman	1,337
Simcoe	171,433
Adjala	2,278
Essa	12,028
Flos	2,950
Gwillimbury, West	3,272
Innisfil	10,500
Matchedash	428
Medonte	2,895
Nottawasaga	5,458
Orillia	5,032
Oro	5,190
Sunnidale	2,349
Tay	4,321
Tecumseth	4,158
Tiny	5,519
Tosorontio	2,963
Vespra	4,183
Indian Reserve – Réserves indiennes	435
Cities – Cités:	
Barrie	27,676
Orillia(1)	24,040
Towns – Villes:	
Alliston	3,176
Bradford	3,401
Collingwood	9,775
Midland	10,992
Penetanguishene	5,497
Stayner	1,937
Villages:	
Beeton	1,061
Coldwater	759
Cookstown	847
Creemore	978
Elmvale	1,103
Port McNicoll	1,450
Tottenham	1,616
Victoria Harbour	1,243
Wasaga Beach	1,923
Stormont	61,302
Cornwall	4,540
Finch	2,293
Osnabruck	3,372
Roxborough	2,940
Indian Reserves – Réserves indiennes	644
Cities – Cités:	
Cornwall	47,116
Villages:	
Finch	397
Sudbury(1)	198,079
Baldwin	612
Balfour(2)	9,101
Casimir, Jennings & Appleby	1,300
Chapleau	3,389
Cosby, Mason & Martland	1,688
Dowling	3,018
Drury, Denison & Graham	2,398
Falconbridge	1,269
Hagar	1,127
Hallam	213
Nairn	489
Neelon & Garson	6,296
Onaping I.D.	1,504
Ratter & Dunnet	1,598
Rayside	6,344
Salter, May & Harrow	1,047
Valley East(3)	17,937
Waters	2,936
Unorganized(4) – Non municipalisé(4)	20,633
Indian Reserves – Réserves indiennes	323
Cities – Cités:	
Sudbury	90,535
Towns – Villes:	
Capreol	3,470
Coniston	2,907
Copper Cliff	4,08
Espanola	6,045
Levack	2,948
Lively	3,000
Massey	1,278
Webbwood	585

Subdivision	Total
Thunder Bay	145,390
Beardmore I.D.	807
Conmee	344
Dorion(1)	506
Gillies	333
Longlac	1,484
Manitouwadge I.D.	3,340
Marathon(1)	2,456
Nakina I.D.	667
Neebing(2)	524
Nipigon	2,637
O'Connor	422
Oliver	1,342
Paipoonge	2,340
Red Rock I.D.	1,892
Schreiber	2,089
Shuniah(2)	1,292
Terrace Bay	1,860
Unorganized – Non municipalisé	6,310
Indian Reserves – Réserves indiennes	3,156
Cities – Cités:	
Thunder Bay(2)	108,411
Towns – Villes:	
Geraldton	3,178
Timiskaming(1)	46,485
Armstrong	1,334
Brethour	202
Casey	586
Chamberlain	377
Coleman	764
Dack	429
Dymond	1,010
Evanturel	630
Gauthier I.D.	201
Harley	582
Harris	407
Hilliard	383
Hudson	436
James	666
Kerns	460
Kingham I.D. (part)(2)	39
Larder Lake	1,475
McGarry	1,757
Teck	15,205
Unorganized – Non municipalisé	4,052
Towns – Villes:	
Charlton	131
Cobalt	2,197
Englehart	1,721
Haileybury(3)	5,280
Latchford	535
New Liskeard	5,488
Villages:	
Thornloe	138
Toronto(1)	086,017
Boroughs:(2)	
Etobicoke(3)	282,686
Scarborough	334,310
York(3)	147,301
York, East(3)	104,784
York, North	504,150
Cities – Cités:	
Toronto(3)	712,786

Subdivision	Total
Victoria	34,242
Bexle[illegible]	689
Card[illegible]	368
Dalt[illegible]	219
E[illegible]	1,625
Emily	2,333
Fenelon	2,773
Laxton, Digby & Longford	616
Mariposa	3,155
Ops	2,324
Somerville	1,389
Verulam	1,585
Towns – Villes:	
Lindsay	12,746
Villages:	
Bobcaygeon	1,518
Fenelon Falls	1,616
Omemee	777
Sturgeon Point	36
Woodville	473
Waterloo	254,037
Dumfries, North	4,022
Waterloo	8,733
Wellesley	5,281
Wilmot	7,002
Woolwich	6,354
Cities – Cités:	
Galt	38,897
Kitchener	111,804
Waterloo	36,677
Towns – Villes:	
Elmira	4,730
Hespeler	6,343
New Hamburg	3,008
Preston	16,723
Villages:	
Ayr	1,272
Bridgep[illegible]	2,375
Wellesle[illegible]	816
Wellington	108,581
Arthur	1,685
Eramosa	3,585
Erin	4,354
Garafraxa, West	1,724
Guelph	2,572
Luther, West	1,090
Maryborough	2,233
Minto	2,107
[illegible]chol	2,438
[illegible]eel	3,388
Pilkington	1,545
Puslinch	3,592
Cities – Cités:	
Guelph	60,087
Towns – Villes:	
Fergus	5,433
Harriston	1,785
Mount Forest	3,037
Palmerston	1,855
Villages:	
Arthur	1,414
Clifford	555
Drayton	752
Elora	1,904
Erin	1,446

Subdivision	Total
Wentworth(1)	401,883
Ancaster	15,326
Beverly	6,153
Binbrook	3,826
Flamborough, East	5,980
Flamborough, West	8,588
Glanford	6,110
Saltfleet	18,993
Cities – Cités:	
Hamilton	309,173
Towns – Villes:	
Dundas	17,208
Stoney Creek	8,380
Villages:	
Waterdown	2,146
York(1)	166,060
Georgina(2)	14,959
Gwillimbury, East(2)	9,359
King(2)	12,864
Indian Reserves – Réserves indiennes	120
Towns – Villes:	
Aurora(2)	13,614
Markham(2)	36,684
Newmarket(2)	18,941
Richmond Hill(2)	32,384
Vaughan(2)	15,873
Whitchurch – Stouffville(2)	11,262

Notes:

Ontario

Algoma Terr. Dist.

(1) Terr. Dist. boundaries altered due to part of Terr. Dist. annexed to Salter, May & Harrow Twp. (Sudbury).

Bruce County

(1) County boundaries altered due to part of county annexed to Hanover Town (Grey).

Cochrane Terr. Dist.

(1) Amalgamation of Black River Twp. and Matheson Town.
(2) For other part see Timiskaming Terr. Dist.
(3) Previously Calvert Twp. and Iroquois Falls Town.

Essex County

(1) County boundaries altered due to part of county annexed to Tilbury Town (Kent).
(2) Previously village.

Grey County

(1) County boundaries altered due to part of Bruce County annexed to Hanover Town.

Halton County

(1) County boundaries altered to include all of Burlington Town.

Hastings County

(1) County boundaries altered due to part of Northumberland County annexed to Trenton Town.

Kenora Terr. Dist.

(1) Incorporated after June 1, 1966.

Kent County

(1) County boundaries altered due to part of Essex County annexed to Tilbury Town.

Lennox & Addington County

(1) Previously Camden.

Muskoka District Municipality

(1) Dist. Mun. boundaries altered due to part of Nipissing Terr. Dist. annexed to Lake of Bays Twp. Previously Territorial District.

(2) Internal reorganization of municipalities.

Niagara Regional Municipality

(1) Previously Lincoln and Welland Counties.
(2) Internal reorganization of municipalities.

Nipissing Terr. Dist.

(1) Terr. Dist. boundaries altered due to part of Terr. Dist. annexed to Lake of Bays Twp. (Muskoka, Dist. Mun.) and to Unorganized (Timiskaming Terr. Dist.).
(2) Incorporated after June 1, 1966.
(3) Annexation [illegible] West Ferris and Widdifield Twps.

Northumberland County

(1) County boundaries altered due to part of county annexed to Trenton Town (Hastings).

Ontario County

(1) Amalgamation of Whitby Twp. and Town.

Ottawa – Carleton Regional Municipality

(1) Previously Carleton County with the addition of Cumberland Twp. from Russell County.

(2) Previously Eastview.

Oxford County

(1) County boundaries altered due to part of Perth County annexed to Tavistock Village.

Peel County

(1) Previously Toronto Twp.

Perth County

(1) County boundaries altered due to part of county annexed to Tavistock Village (Oxford).

Renfrew County

(1) Previously town.

Russell County

(1) County boundaries altered to exclude Cumberland Twp. (Ottawa – Carleton).

Simcoe County

(1) Previously town.

Sudbury Terr. Dist.

(1) Terr. Dist. boundaries altered due to part of Algoma Terr. Dist. annexed to Salter, May & Harrow Twp.
(2) Annexation of Chelmsford Town.
(3) Amalgamation of Capreol, Hanmer and Blezard Twps. and, annexation of part of Unorganized.
(4) Annexation of Renabie I.D.

Thunder Bay Terr. Dist.

(1) Previously I.D.
(2) Amalgamation of part of Neebing Twp., part of Shuniah Twp., Fort William and Port Arthur Cities.

Timiskaming Terr. Dist.

(1) Terr. Dist. boundaries altered due to part of Nipissing Terr. Dist. annexed to Unorganized.
(2) For other part see Cochrane Terr. Dist.
(3) Amalgamation of Bucke Twp. and Haileybury Town.

Toronto Metropolitan Municipality

(1) Previously part of York County, formerly Toronto Metropolitan Corporation.
(2) Previously township.
(3) Internal reorganization of municipalities.

Wentworth County

(1) County boundaries altered to exclude Burlington Town.

York Regional Municipality

(1) Previously part of former York County, that part lying outside the former Toronto Metropolitan Corporation.
(2) Internal reorganization of municipalities.

Source: Statistics Canada, 1971 Census of Canada, Population Census Divisions and Subdivisions (Ontario), Bulletin 1.1-6 (Ottawa: Information Canada, 1972), Cat. 92-706, Table 6.

Section B: Background to the Projection

A.

The Projection of Fertility

Because the level of births from one year to the next is crucial in determining the subsequent level of enrolments in the early years of the education system, the number of actual live births over the years 1967-1971 were written into the projection rather than computing births from age-specific fertility rates, a method which tends to smooth the resulting output. Beyond 1971, the direction and levels of fertility for future years were estimated by making assumptions about expected changes in age-specific and total fertility rates over the period 1971-1986 on the basis of the findings respecting fertility as reported in Section A of this report. For the age-specific fertility rates, the method used was to compute these rates by five-year age groups and to make estimates by single years of age by using the Gompertz curve, using cumulative births to ages 20, 30, and 40.

The assumptions decided upon were that the age-specific and total fertility rates would decline as follows over the period 1971-1986:

women aged 15-19: the lowest age-specific fertility rate for any county, district, or regional area in the province in 1971 will have been reached by all parts of the province by 1986;

women aged 20-29: in counties, districts, and regional areas of the economic region where the age-specific rate was higher than that for the region in 1971, the rate would have declined to the regional level by 1986; in areas where the rate was lower than that for the region in 1971, it would have continued at the 1971 level;

women aged 30-34: the lowest age-specific fertility rate observed in 1971 for any economic region in the province would be reached by all parts of the province by 1986;

women aged 35-44: the lowest age-specific fertility rate observed in 1971 for any county, district, or regional area in the province would be reached by all parts of the province by 1986;

women aged 45-49: this age group would have no fertility by 1986.

The implications of these assumptions are shown in Table A-1, which summarizes the percentage decline in fertility rates for various ages of women over the period 1971-1986.

TABLE A-1

ASSUMED CHANGE IN AGE SPECIFIC AND TOTAL FERTILITY RATES FOR ONTARIO, 1971 to 1986

Age Group of Women	Assumed change, 1971-1986 (%)
15-19	-41.27
20-24	- 4.32
25-29	- 3.08
30-34	-19.87
35-39	-27.35
40-44	-43.53
45-49	-100.00
Total Fertility Rate	-12.68

The result of applying these assumptions respecting fertility to the various counties, districts, and regional areas according to their location within economic regions is shown for education regions and for areas within education regions in Tables A-2 through A-11.

TABLE A-2

EXPECTED AGE SPECIFIC AND TOTAL FERTILITY RATES FOR EDUCATION REGIONS IN ONTARIO, 1986

Region/Province		Age of Women							Total Fertility Rate
		15-19	20-24	25-29	30-34	35-39	40-44	45-49	
Northwestern Region		.02577	.18113	.16596	.06195	.02266	.00441	.00000	2.30942
Midnorthern Region		.02577	.17639	.15934	.06195	.02266	.00441	.00000	2.25260
Northeastern Region		.02577	.17128	.15088	.06195	.02266	.00441	.00000	2.18477
Western Region		.02577	.14387	.15708	.06195	.02266	.00441	.00000	2.07865
Midwestern Region		.02577	.14577	.15533	.06195	.02266	.00441	.00000	2.07842
Niagara Region		.02577	.12553	.14421	.06195	.02266	.00441	.00000	1.92259
Central Region		.02577	.12181	.13401	.06195	.02266	.00441	.00000	1.85305
Eastern Region		.02577	.13750	.14051	.06195	.02266	.00441	.00000	1.96396
Ottawa Valley Region		.02577	.11066	.13572	.06195	.02266	.00441	.00000	1.80587
ONTARIO	1971	.04388	.13715	.14574	.07731	.03119	.00781	.00041	2.21751
	1986	.02577	.13123	.14125	.06195	.01166	.00441	.00000	1.93632

TABLE A-3

EXPECTED AGE SPECIFIC AND TOTAL FERTILITY RATES IN COUNTIES, DISTRICTS AND REGIONAL AREAS OF THE NORTHWESTERN EDUCATION REGION IN 1986

County, District or Regional Area	Age of Women							Total Fertility Rate
	15-19	20-24	25-29	30-34	35-39	40-44	45-49	
Kenora	.02577	.18113	.16596	.06195	.02266	.00441	.00000	2.30942
Rainy River	.02577	.18113	.16054	.06195	.02266	.00441	.00000	2.28233
Thunder Bay	.02577	.16481	.16130	.06195	.02266	.00441	.00000	2.20448
Northwestern Region	.02577	.18113	.16596	.06195	.02266	.00441	.00000	2.30942

TABLE A-4

EXPECTED AGE SPECIFIC AND TOTAL FERTILITY RATES IN COUNTIES, DISTRICTS AND REGIONAL AREAS OF THE MIDNORTHERN EDUCATION REGION IN 1986

Algoma	.02577	.16733	.15516	.06195	.02266	.00441	.00000	2.18637
Manitoulin	.02577	.18076	.16123	.06195	.02266	.00441	.00000	2.28391
Sudbury	.02577	.18076	.16123	.06195	.02266	.00441	.00000	2.28391
Midnorthern Region	.02577	.17639	.15934	.06195	.02266	.00441	.00000	2.25260

TABLE A-5

EXPECTED AGE SPECIFIC AND TOTAL FERTILITY RATES IN COUNTIES, DISTRICTS AND REGIONAL AREAS OF THE NORTHEASTERN EDUCATION REGION IN 1986

County, District or Regional Area	Age of Women							Total Fertility Rate
	15-19	20-24	25-29	30-34	35-39	40-44	45-49	
Cochrane	.02577	.18076	.15338	.06195	.02266	.00441	.00000	2.24463
Muskoka	.02577	.16191	.14194	.06195	.02266	.00441	.00000	2.09314
Nipissing	.02577	.17047	.15352	.06195	.02266	.00441	.00000	2.19387
Parry Sound	.02577	.16371	.14088	.06195	.02266	.00441	.00000	2.09688
Timiskaming	.02577	.16484	.15615	.06195	.02266	.00441	.00000	2.17891
Northeastern Region	.02577	.17128	.15088	.06195	.02266	.00441	.00000	2.18476

TABLE A-6

EXPECTED AGE SPECIFIC AND TOTAL FERTILITY RATES IN COUNTIES, DISTRICTS AND REGIONAL AREAS OF THE WESTERN EDUCATION REGION IN 1986

Elgin	.02577	.13794	.14545	.06195	.02266	.00441	.00000	1.99093
Essex	.02577	.15601	.16278	.06195	.02266	.00441	.00000	2.16787
Huron	.02577	.14994	.16118	.06195	.02266	.00441	.00000	2.12955
Kent	.02577	.16114	.15817	.06195	.02266	.00441	.00000	2.17049
Lambton	.02577	.16114	.16198	.06195	.02266	.00441	.00000	2.18956
Middlesex	.02577	.12451	.15202	.06195	.02266	.00441	.00000	1.95659
Western Region	.02577	.14386	.15708	.06195	.02266	.00441	.00000	2.07865

TABLE A-7

EXPECTED AGE SPECIFIC AND TOTAL FERTILITY RATES IN COUNTIES, DISTRICTS AND REGIONAL AREAS OF THE MIDWESTERN EDUCATION REGION IN 1986

County, District or Regional Area	Age of Women							Total Fertility Rate
	15-19	20-24	25-29	30-34	35-39	40-44	45-49	
Brant	.02577	.12965	.13355	.06195	.02266	.00441	.00000	1.88992
Bruce	.02577	.16371	.16204	.06195	.02266	.00441	.00000	2.20164
Grey	.02577	.15771	.16204	.06195	.02266	.00441	.00000	2.17266
Oxford	.02577	.13794	.15202	.06195	.02266	.00441	.00000	2.02377
Perth	.02577	.14994	.16118	.06195	.02266	.00441	.00000	2.12954
Waterloo	.02577	.14756	.15564	.06195	.02266	.00441	.00000	2.08995
Wellington	.02577	.14455	.16118	.06195	.02266	.00441	.00000	2.10259
Midwestern Region	.02577	.14577	.15513	.06195	.02266	.00441	.00000	2.07841

TABLE A-8

EXPECTED AGE SPECIFIC AND TOTAL FERTILITY RATES IN COUNTIES, DISTRICTS AND REGIONAL AREAS OF THE NIAGARA EDUCATION REGION IN 1986

Haldimand	.02577	.13077	.14620	.06195	.02266	.00441	.00000	1.95876
Niagara	.02577	.13077	.14620	.06195	.02266	.00441	.00000	1.95875
Norfolk	.02577	.13794	.14234	.06195	.02266	.00441	.00000	1.95737
Wentworth	.02577	.11964	.14265	.06195	.02266	.00441	.00000	1.88542
Niagara Region	.02577	.12553	.14421	.06195	.02266	.00441	.00000	1.92259

TABLE A-9

EXPECTED AGE SPECIFIC AND TOTAL FERTILITY RATES IN COUNTIES, DISTRICTS AND REGIONAL AREAS OF THE CENTRAL EDUCATION REGION IN 1986

County, District or Regional Area	Age of Women							Total Fertility Rate
	15-19	20-24	25-29	30-34	35-39	40-44	45-49	
Dufferin	.02577	.16371	.16204	.06195	.02266	.00441	.00000	2.20265
Durham	.02577	.15090	.13902	.06195	.02266	.00441	.00000	2.02351
Haliburton	.02577	.14815	.14506	.06195	.02266	.00441	.00000	2.03999
Halton	.02577	.12354	.13654	.06195	.02266	.00441	.00000	1.87429
Ontario	.02577	.12354	.13654	.06195	.02266	.00441	.00000	1.87429
Peel	.02577	.12354	.13654	.06195	.02266	.00441	.00000	1.87429
Simcoe	.02577	.15502	.16204	.06195	.02266	.00441	.00000	2.15919
Victoria	.02577	.15090	.13224	.06195	.02266	.00441	.00000	1.98963
York	.02577	.11795	.13061	.06195	.02266	.00441	.00000	1.81674
Central Region	.02577	.12181	.13401	.06195	.02266	.00441	.00000	1.85305

TABLE A-10

EXPECTED AGE SPECIFIC AND TOTAL FERTILITY RATES IN COUNTIES, DISTRICTS AND REGIONAL AREAS OF THE EASTERN EDUCATION REGION IN 1986

County. District or Regional Area	Age of Women							Total Fertility Rate
	15-19	20-24	25-29	30-34	35-39	40-44	45-49	
Frontenac	.02577	.11721	.14019	.06195	.02266	.00441	.00000	1.86091
Grenville	.02577	.12181	.12133	.06195	.02266	.00441	.00000	1.78965
Hastings	.02577	.15059	.14128	.06195	.02266	.00441	.00000	2.03330
Leeds	.02577	.12181	.14019	.06195	.02266	.00441	.00000	1.88392
Lennox & Addington	.02577	.15090	.14506	.06195	.02266	.00441	.00000	2.05375
Northumberland	.02577	.15090	.13992	.06195	.02266	.00441	.00000	2.02805
Peterborough	.02577	.13115	.14506	.06195	.02266	.00441	.00000	1.95499
Prince Edward	.02577	.15090	.13028	.06195	.02266	.00441	.00000	1.97980
Eastern Region	.02577	.13750	.14051	.06195	.02266	.00441	.00000	1.96397

TABLE A-11

EXPECTED AGE SPECIFIC AND TOTAL FERTILITY RATES IN COUNTIES, DISTRICTS AND REGIONAL AREAS OF THE OTTAWA VALLEY EDUCATION REGION IN 1986

County, District or Regional Area	Age of Women							Total Fertility Rate
	15-19	20-24	25-29	30-34	35-39	40-44	45-49	
Dundas	.02577	.12181	.14019	.06195	.02266	.00441	.00000	1.88393
Glengarry	.02577	.12181	.14019	.06195	.02266	.00441	.00000	1.88392
Lanark	.02577	.12181	.12439	.06195	.02266	.00441	.00000	1.80494
Ottawa-Carleton	.02577	.10712	.13531	.06195	.02266	.00441	.00000	1.78607
Prescott	.02577	.12181	.14019	.06195	.02266	.00441	.00000	1.88393
Renfrew	.02577	.12181	.14019	.06195	.02266	.00441	.00000	1.88392
Russell	.02577	.12181	.14019	.06195	.02266	.00441	.00000	1.88393
Stormont	.02577	.12181	.13651	.06195	.02266	.00441	.00000	1.86552
Ottawa Valley Region	.02577	.11066	.13572	.06195	.02266	.00441	.00000	1.80587

B.

The Projection of Mortality

The input with respect to mortality was in the form of survival ratios from life tables generated for the province's ten economic regions. The basis for these life tables was death rates computed from vital statistics on deaths by age and sex and data for population in each region. Life tables might have been calculated for counties, districts, and regional areas, rather than for regions, but the values of the survival ratios would not have been significantly different since death rates do not vary widely across the province.

In extrapolating death rates by age and sex, the possibility was considered of extrapolating age-, sex-, and cause-specific death rates rather than age- and sex-specific death rates. However, the method was not suitable since data were not available for the former for the census units of Ontario over a period of several years. Therefore, death rates were extrapolated on the basis of the trends in age- and sex-specific death rates over a number of years. Tables 2.1, 2.2, and 2.3 in Section A of this report, where age-specific death rates are given for males and females in Ontario and in the counties, districts, and regional areas, indicate the type of data used for extrapolation of trends in mortality to 1986.[1]

On the basis of these trends, and assuming that overall life expectancy across the province would be extended by about six months for every two calendar years, we projected Ontario's life expectancy at birth to about 76 years for males, and to about 80 years for females, by 1986.

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[1] Data for earlier years are given in Betty Macleod, Carol Ivison, and Nirmala Bidani, Patterns and Trends in Ontario Population (Toronto: Ontario Institute for Studies in Education, 1972), pp. 163-169.

After projecting age- and sex-specific mortality for ages one and over, as described below, we adjusted infant mortality to the necessary level to achieve the life expectancies at birth which we had projected. An infant mortality rate for the province of about 12.57 for males and 9.58 for females (approximately that recorded for Sweden in 1971)[2] would have to have been achieved by 1986 to validate these assumptions.

Using the above assumptions as guidelines, we then carried out calculations to ascertain the expected declines in infant mortality and in mortality for age groups 1 to 44, and ages 45 and over, in the following manner:

1. Infant mortality: infant mortality rates in the economic regions were reviewed for the years 1956, 1961, 1966, and 1971 and the regions were rank-ordered according to levels of infant mortality in 1971. The counties, districts, and regional areas were then grouped into three classes, according to the regional levels of infant mortality in 1971, and arbitrary rates of decline were assigned for male and female infant mortality, which would have the overall effect of achieving the anticipated average level of infant mortality across Ontario by 1986. Table B-1 lists rank-ordering of regions; observed decline for 1956-71; assumptions about the extent to which the decline of 1956-71 will continue until 1986; the expected overall decline in rates over the period; and resulting infant mortality rates.
2. Ages 1 to 44: for these ages the assumption was that mortality over the period 1971-86 would decline at a rate equivalent to two-thirds of the percentage change between 1956 and 1971.
3. Ages 45 and above: the assumption was that mortality would decline at one-third the percentage change observed between 1956 and 1971.

Tables B-2 and B-3 show the resulting levels of age-specific death rates by sex for five-year age groups across Ontario, for census years 1956 through 1986. Age 0 in these tables represents the level of infant mortality across Ontario which coincides with that indicated for the economic regions in Table B-1.

Tables B-4 and B-5 summarize the assumed changes in mortality for males and females across all ages by economic region, based upon the projection of age-specific death rates in a manner similar to that for

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[2] United Nations, Demographic Yearbook 1972 (New York: United Nations, 1973), p. 521.

Ontario. After a smoothing process to eradicate the irregularities resulting from the use of individual years--and in some instances relatively small numbers of population--as the base for the rates, we calculated survival rates by age and sex for each county, district, and regional area according to the expected mortality levels for the economic region within which the county, district, or regional area was located. These survival rates were constructed on the premise that mortality would decline across all ages over the interval for which the projections were being developed. Consequently, increases in the rate of mortality, as recorded for certain years of age and in selected parts of Ontario, were treated as statistical aberrations not reflecting true trends. In such cases the survival ratios were accordingly assumed to remain the same as in 1971.

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TABLE B-1
OBSERVED AND EXPECTED INFANT MORTALITY RATES FOR ECONOMIC REGIONS OF ONTARIO, 1971 AND 1986

Males						Females					
ECONOMIC REGIONS*	1971 Infant Mortality Rate	Observed Decline 1956-71 %	Rate of Decline 1971-86 % as of 1956-71	Expected Decline 1971-86 %	1986 Infant Mortality Rate	ECONOMIC REGION	1971 Infant Mortality Rate	Observed Decline 1956-71 %	Rate of Decline 1971-86 % as of 1956-71	Expected Decline 1971-86 %	1986 Infant Mortality Rate
10	25.29	43.49	75	32.62	17.04	10	18.61	47.94	80	38.35	11.47
5	21.17	9.99	75	7.49	19.58	1	16.97	39.99	80	31.99	11.54
2	20.89	29.47	75	22.10	16.27	9	15.55	41.63	80	33.30	10.37
8	19.45	31.13	65	20.23	15.52	8	15.17	33.26	80	26.61	11.13
7	18.72	24.49	65	15.92	15.74	4	14.30	29.63	70	20.74	11.33
9	18.34	45.34	65	29.47	12.94	2	13.54	45.29	70	31.70	9.25
1	17.95	40.83	55	22.46	13.92	6	12.97	38.96	60	23.38	9.94
4	17.05	31.96	55	17.58	14.05	3	11.54	38.16	60	22.90	8.90
6	15.68	41.41	45	18.63	12.76	5	10.84	42.92	50	21.46	8.51
3	14.92	38.01	45	17.10	12.37	7	10.12	47.62	50	23.81	7.71

*Regions: 1. Eastern Ontario; 2. Lake Ontario; 3. Metropolitan; 4. Niagara; 5. Lake Erie; 6. Lake St. Clair; 7. Upper Grand River; 8. Georgian Bay; 9. Northeastern Ontario; 10. Lakehead-Northwestern Ontario.

Sources: Betty Macleod, Carol Ivison and Nirmala Bidani, Patterns and Trends in Ontario Population (Toronto: Ontario Institute for Studies in Education, 1972), p.169, and Betty B. Macleod, "The Development of Improved Bases for Forecasting School Age Population Throughout Ontario", Report for Year 2, pp.132-3.

TABLE B-2
PERCENTAGE CHANGE IN AGE SPECIFIC DEATH RATES FOR MALES, ONTARIO CENSUS INTERVALS 1956 to 1971, AND PROJECTED 1971-1986

	Age Specific Death Rates[1]					Percentage Change				
Age Group	1956	1961	1966	1971	1986	1956-61	1961-66	1966-71	1956-71	1971-86[2]
0	27.80	25.87	22.79	16.98	12.57	- 6.94	-11.91	-25.49	-38.92	-25.95
1-4	7.43	6.37	4.76	4.06	2.83	-14.27	-25.27	-14.71	-45.36	-30.24
5-9	0.68	0.55	0.49	0.48	0.39	-19.12	-10.11	- 2.04	-29.41	-19.61
10-14	0.50	0.50	0.53	0.41	0.35	-	+ 6.00	- 2.64	-18.00	-12.00
15-19	1.39	1.12	1.14	1.22	1.11	-19.42	+ 1.79	+ 7.02	-12.23	- 8.15
20-24	1.45	1.53	1.46	1.47	1.48	+ 5.52	- 4.58	+ 0.68	+ 1.38	+ 0.92
25-29	1.46	1.31	1.28	1.13	0.94	-10.27	- 2.29	-11.72	-22.60	-15.07
30-34	1.78	1.40	1.46	1.44	1.23	-21.35	+ 4.29	- 1.37	-19.10	-12.73
35-39	2.17	2.22	2.00	1.98	1.86	+ 2.30	- 9.91	- 1.00	- 8.88	- 5.84
40-44	3.20	3.34	3.25	3.33	3.23	+ 4.38	- 2.69	+ 2.46	+ 4.06	+ 2.71
45-49	5.85	6.14	5.90	5.38	5.24	+ 4.96	- 3.91	- 8.81	-43.25	- 2.68
50-54	10.29	10.10	9.87	9.05	8.69	- 1.85	- 2.28	- 8.31	-12.05	- 4.02
55-59	16.48	16.21	16.03	14.82	14.32	- 1.64	- 1.11	- 7.55	-10.07	- 3.36
60-64	25.74	25.59	24.81	23.35	22.63	- 0.58	- 3.05	- 5.88	- 9.29	- 3.09
65-69	39.38	37.74	38.55	36.13	35.14	- 4.16	+ 2.15	- 6.28	- 8.25	- 2.75
70-74	57.03	58.94	56.55	52.83	51.54	+ 3.35	- 4.05	- 6.58	- 7.36	- 2.45
75 +	122.96	118.04	122.16	116.70	114.72	- 4.00	+ 3.49	- 4.47	- 5.09	- 1.70

1. Age specific death rates from: Betty Macleod, Carol Ivison and Nirmala Bidani, Patterns and Trends in Ontario Population (Toronto: Ontario Institute for Studies in Education, 1972), p.162; and Betty B. Macleod, "The Development of Improved Bases for Forecasting School Age Population Throughout Ontario", Report for Year 2, pp.110-1.

2. The rate of change for 1971-86 is computed in the following manner: for ages 0-44, 2/3rds of 1956-71 percent change; for ages 45 and above, 1/3rd of 1956-71 percent change.

TABLE B-3
PERCENTAGE CHANGE IN AGE SPECIFIC DEATH RATES FOR FEMALES, ONTARIO CENSUS INTERVALS 1956 to 1971, AND PROJECTED 1971-86

Age Group	Age Specific Death Rates[1]					Percentage Change				
	1956	1961	1966	1971	1986	1956-61	1961-66	1966-71	1956-71	1971-86[2]
0	22.37	19.98	17.54	13.20	9.58	-10.68	-12.21	-24.69	-40.95	-27.30
1-4	5.99	4.90	3.71	3.19	2.20	-18.20	-24.29	-14.02	-46.74	-31.16
5-9	0.40	0.35	0.42	0.35	0.32	-12.50	+20.00	-16.67	-12.50	- 8.33
10-14	0.36	0.31	0.27	0.31	0.28	-13.89	-12.90	+14.81	-13.89	- 9.26
15-19	0.46	0.45	0.48	0.50	0.53	- 2.17	+ 6.67	+ 4.17	+ 8.70	+ 5.80
20-24	0.55	0.53	0.46	0.49	0.45	- 3.64	-13.21	+ 6.52	-10.91	- 7.27
25-29	0.74	0.71	0.60	0.51	0.40	- 4.05	-15.49	-15.00	-31.08	-20.72
30-34	0.86	0.86	0.82	0.78	0.73	-	- 4.65	- 4.88	- 9.30	- 6.20
35-39	1.28	1.32	1.21	1.23	1.20	+ 3.13	- 8.33	- 1.65	- 3.91	- 2.60
40-44	2.23	1.88	1.95	2.01	1.88	-15.70	+ 3.72	+ 3.08	- 9.87	- 6.58
45-49	3.57	3.34	3.32	3.01	2.85	- 6.44	- 0.60	- 9.34	-15.69	- 5.23
50-54	5.81	5.34	5.08	4.63	4.32	- 8.09	- 4.87	- 8.86	-20.31	- 6.77
55-59	9.01	7.92	7.81	7.20	6.72	-12.10	- 1.39	- 7.81	-20.09	- 6.70
60-64	14.26	12.31	12.53	10.87	10.01	-13.67	+ 1.79	-13.25	-23.77	- 7.92
65-69	22.05	21.41	18.77	17.39	16.17	- 2.90	-12.33	- 7.35	-21.13	- 7.04
70-74	37.16	33.81	30.83	27.64	25.28	- 9.02	- 8.81	-10.35	-25.62	- 8.54
75 +	104.19	98.00	90.76	80.96	74.94	- 5.94	- 7.39	-10.80	-22.29	- 7.43

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1. Age specific death rates from: Betty Macleod, Carol Ivison and Nirmala Bidani, Patterns and Trends in Ontario Population (Toronto: Ontario Institute for Studies in Education, 1972), p.162; and Betty B. Macleod, "The Development of Improved Bases for Forecasting School Age Population Throughout Ontario", Report for Year 2, pp.110-1.

2. The rate of change for 1971-86 is computed in the following manner: for ages 0-44, 2/3rds of 1956-71 percent change; for ages 45 and above, 1/3rd of 1956-71 percent change.

TABLE B-4

RATES OF MORTALITY DECLINE FOR MALES, FOR ECONOMIC REGIONS OF ONTARIO, 1971-86*

Age	Region										
	1	2	3	4	5	6	7	8	9	10	Ontario
0	-22.46	-22.10	-17.10	-17.58	- 7.49	-18.63	-15.92	-20.23	-29.47	-32.62	-25.95
1-4	-36.07	-27.54	-30.11	-31.95	-19.02	-30.34	-17.48	-21.01	-31.90	-30.45	-30.24
5-9	- 5.29	-29.03	-27.27	-24.44	-13.16	+ 9.15	-24.17	-28.28	-17.28	-13.11	-19.61
10-14	-27.62	+36.78	-25.64	+32.48	+36.56	-25.00	-30.51	+ 7.02	+12.61	+105.56	-12.00
15-19	-19.44	+ 1.27	- 7.12	-26.85	+ 2.55	- 5.13	+ 5.19	+22.04	+ 3.49	+ 8.33	- 8.15
20-24	+19.83	-23.85	-12.50	+11.11	+14.01	+ 1.14	+44.27	+27.80	+ 6.36	-23.51	+ 0.92
25-29	-12.28	-12.80	-21.11	- 9.69	+ 9.69	+75.47	-30.47	-32.18	-28.34	-18.45	-15.07
30-34	+ 0.42	-32.76	-11.56	-33.12	- 5.18	- 7.67	-17.75	+ 0.95	- 6.58	+ 1.83	-12.73
35-39	- 7.89	-18.37	- 2.74	+ 2.37	+40.96	- 7.41	- 6.75	-20.17	- 5.77	-17.61	- 5.84
40-44	+ 3.12	+ 3.25	+ 1.08	+ 1.77	- 1.73	+46.15	- 8.00	- 5.37	+ 4.33	+17.16	+ 2.71
45-49	- 4.46	- 3.29	- 4.34	+ 0.80	- 7.25	- 0.31	+ 7.78	- 1.20	+ 1.83	- 0.93	- 2.68
50-54	- 3.94	+ 3.04	- 6.87	- 2.08	- 1.56	+ 0.30	- 8.18	+ 0.56	- 2.53	- 2.33	- 4.02
55-59	- 1.57	+ 1.24	- 8.43	- 1.25	+ 1.98	+ 0.10	- 3.54	+ 3.95	-.3.59	+ 3.72	- 3.36
60-64	- 3.84	+ 0.90	- 4.37	- 6.25	- 1.11	- 2.69	- 0.83	+ 0.34	- 0.84	- 0.34	- 3.09
65-69	- 3.06	+ 5.81	- 2.49	- 2.15	- 2.69	- 2.35	- 7.18	- 5.61	- 3.12	- 4.60	- 2.75
70-74	- 5.30	- 5.17	- 4.88	- 1.40	+ 1.02	- 3.44	- 0.61	- 1.77	+ 2.49	- 2.86	- 2.45
75 +	- 0.96	- 2.51	- 2.39	- 2.09	+ 0.88	- 3.54	- 3.79	- 2.16	+ 1.63	+ 3.80	- 1.70

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* The projected change in mortality was computed by assuming that the rate of change over the period 1971-86 would be 2/3rds of that for 1956-71 for ages 1-44, and 1/3rd of that for 1956-71 for ages 45 and over. Special assumptions were made for infant mortality, as described in the text. Gains in mortality were treated as aberrations for projection purposes, so that the input was the same as for 1971.

TABLE B-5
RATES OF MORTALITY DECLINE FOR FEMALES, FOR ECONOMIC REGIONS OF ONTARIO, 1971-86*

Age	Region										
	1	2	3	4	5	6	7	8	9	10	Ontario
0	-31.99	-31.70	-22.90	-20.74	-21.46	-23.38	-23.81	-26.61	-33.30	-38.35	-27.30
1-4	-29.60	-32.67	-30.44	-22.88	-24.67	-30.24	-34.36	-29.09	-35.24	-36.37	-31.16
5-9	+38.38	+34.29	-14.64	-25.93	-20.61	- 9.88	+62.74	-15.51	-23.93	-36.36	- 8.33
10-14	-27.21	+20.29	+ 5.13	+11.59	-26.19	+10.37	- 4.30	-21.38	-13.67	-23.48	- 9.26
15-19	-15.69	+14.67	- 3.33	+50.57	+53.33	-27.78	+133.33	+32.00	+22.64	+11.35	+ 5.80
20-24	-39.36	+22.73	- 4.54	-13.11	-36.96	+27.78	+19.86	+100.90	+47.83	- 4.12	- 7.27
25-29	-43.14	+23.33	-23.23	-16.30	-10.48	+ 9.39	-20.17	- 3.92	-31.55	+42.22	-20.72
30-34	-29.69	-21.00	+ 4.22	-16.89	+47.95	-16.38	-15.81	-21.51	-19.70	+296.30	- 6.20
35-39	+ 3.92	-28.90	-11.85	+ 1.63	0.00	-24.73	+ 0.67	+26.67	+22.41	+165.30	- 2.60
40-44	-18.41	-27.95	+10.94	-10.76	-26.82	-10.17	-14.70	-11.11	-14.87	+23.27	- 6.58
45-49	-10.64	+ 3.03	- 4.87	- 9.26	+ 8.74	+13.52	-12.67	- 8.96	- 1.80	- 3.77	- 5.23
50-54	- 5.73	-10.16	- 9.74	- 3.81	- 8.51	- 8.31	- 2.42	- 3.28	- 3.35	+ 6.74	- 6.77
55-59	-10.20	- 5.54	- 6.19	-12.00	+ 0.05	- 6.05	-10.41	- 2.15	- 3.81	+ 8.21	- 6.70
60-64	- 5.57	- 2.97	- 6.67	-13.71	- 6.84	- 7.24	-16.41	- 5.54	- 8.98	+ 4.23	- 7.92
65-69	- 8.55	- 6.23	- 7.45	- 6.12	- 5.54	- 6.54	- 8.31	- 6.53	- 5.76	- 4.56	- 7.04
70-74	- 9.58	- 4.43	- 9.90	- 6.85	- 7.00	- 4.72	- 8.14	- 8.07	-12.37	-10.92	- 8.54
75 +	- 8.42	- 5.21	- 8.34	- 7.90	- 5.31	- 6.80	- 6.64	- 6.14	- 9.13	- 2.39	- 7.43

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* The projected change in mortality was computed by assuming that the rate of change over the period 1971-86 would be 2/3rds of that for 1956-71 for ages 1-44, and 1/3rd of that for 1956-71 for ages 45 and over. Special assumptions were made for infant mortality, as described in the text. Gains in mortality were treated as aberrations for projection purposes, so that the input was the same as for 1971.

C.
The Projection of Migration

As explained earlier in Section A, two assumptions were made respecting migration: (1) that migration would follow the patterns and approximate flow levels implied by the analysis of census data for earlier years; (2) that migration would occur at a level such that in-migration would offset out-migration so that population change would result entirely from changes in the levels of fertility and mortality.

Since the second assumption is the easiest to deal with technically, it is considered first. Generation of the projection program involved the complete omission of the migration component, so that the number of persons by age projected for future calendar years depended entirely upon the base population, the projected levels of fertility, and the survival rate as related to assumptions which were made about levels of mortality. These have all been discussed in preceding pages.

The first assumption, that migration would occur according to patterns established in earlier years, involved some more complicated input procedures. We now define the method used for projecting the migration rates for the first set of assumptions respecting migration and present the intermediate and final data analysis results. The method involved four stages: estimating past migration rates, factoring those estimates, smoothing the factors, and projecting.

Estimating Rates

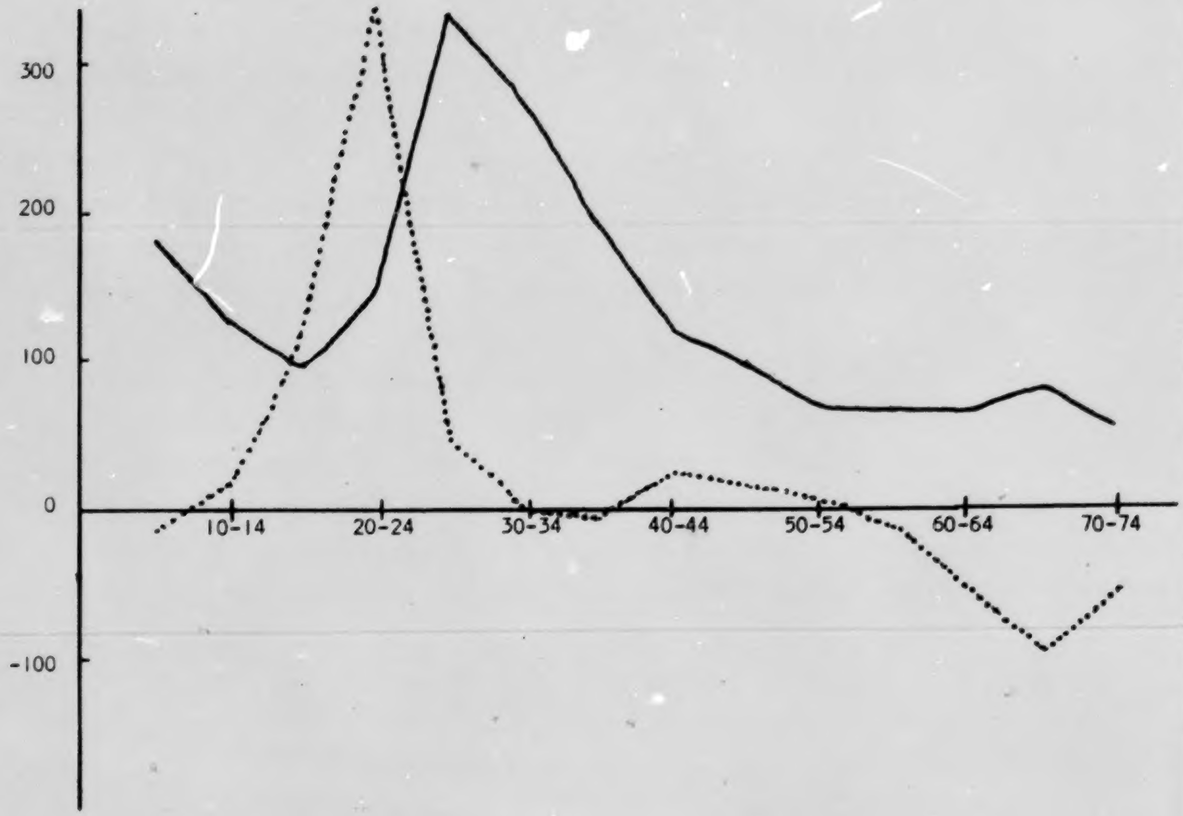
The age- and sex-specific migration rates for the counties, districts, and regional areas were estimated for each of the last three intercensal periods. The data for these calculations were the actual census unit populations and regional survival rates, and the formulae involved a number of adjustments as described in Appendix 1. The result was a 3x53x2x14 set of estimated migration rates for the 3 intercensal periods; 53 counties, districts, and regional areas; 2 sexes; and 14 age groups. Each rate was expressed as a percentage of population above or below the expected population, based on the previous population of the cohort and the survival rate, relative to the previous population of the cohort. The results are listed in Appendix 2.

The size of the largest roots is an indication of how well the data can be approximated by a small number of factors or components. It could be seen that the first two components accounted for most of the variation in the data, so it was decided that a two-component resolution would be used.

This means that the matrix $\underline{X}$ was approximated by a rank-2, smoothed version of it, denoted $\underline{X}^*$ and calculated as the product $\underline{F}\ \underline{A}$ where $\underline{F}$ is a 318x2 matrix and $\underline{A}$ is a 2x14 matrix. The matrix $\underline{A}$ contains the two latent vectors of $\underline{X}'\underline{X}$ corresponding to the largest roots and is scaled by the square roots of the latent roots and by the square roots of the diagonal entries of $\underline{X}'\underline{X}$. The matrix $\underline{F}$ contains the two latent vectors of $\underline{X}\ \underline{X}'$ corresponding to the largest roots. In the terminology of factor analysis, $\underline{A}$ is the factor or component pattern matrix, and $\underline{F}$ is the matrix of factor or component scores. (In regular principal component analysis, the columns of $\underline{X}$ would have zero means.)

The calculated matrix $\underline{A}$ is presented in Table C-2 and the entries are plotted in Figure C-1. The matrix $\underline{F}$ is given in Appendix 3. For purposes of interpretation, note that the set of smoothed migration rate estimates, a 14-element vector, for any given county, district, or regional area, sex, and time period, could be calculated as a weighted sum of the two 14-element rows in $\underline{A}$; the weights are two numbers in proper row of the matrix $\underline{F}$. That is, instead of having one 14-element vector for each census unit, sex, and time period, we have two weights; we also have a single 2x14 matrix which translates the weights into migration estimates. From Figure C-1, it can be seen that positive weights correspond to in-migration in the 15 to 30 age ranges. Negative weights correspond to out-migration in those age ranges. The first row in $\underline{A}$ seems more to index family migration, since it includes fairly high levels for children and older adults. The second row is rather specifically young-adult migration, though this seems to correspond to some opposing migration of old people.

FIGURE C-1: PLOT OF THE ENTRIES OF THE FACTOR PATTERN MATRIX A*



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* The solid lines correspond to the first column and the dotted lines to the second column of Table 2.

The results of the factoring included, then, two summary parameters of migration propensity for each county, sex, and past time period, where the term "county" is taken to mean county, district, or regional area. These are the entries in $\underline{F}$. Also, there was intertranslatability between the summary parameters and smoothed migration rate estimates. This is accomplished using the matrix $\underline{A}$. The smoothed migration rates are given in Appendix 4.

It would have been possible at this point to project the migration rates directly. That is, for each age, sex, and county, there were three estimated rates, corresponding to the three intercensal periods, and any one of a number of extrapolation procedures could have been used to estimate future rates. However, it was considered likely that this would have led to inaccurate projections, because the individual past rates as calculated were subject to considerable error of estimation and were highly dependent on the particular circumstances of their time periods and their age cohorts.

So an alternative strategy was employed. The notion was that the essential migration propensities of a county could be adequately summarized in a small number of parameters. These parameters would be evaluated for the past intercensal periods and would be intertranslatable with smoothed migration rate estimates for those periods. For future time periods, the past parameter values could be extrapolated to projected parameter values, and these could be translated into projected migration rates. The projected rates would also be smooth. Note that the strategy requires intertranslatability between summary parameters and smoothed rates.

Factoring the Estimates

The estimated migration rates were reordered as a 318x14 data matrix, denoted as $\underline{X}$. Each row corresponded to a particular combination of time period, county, and sex (note that 318 = 3x53x2), and the columns corresponded to age groups.

The matrix $\underline{X}$ factored in an analysis similar to principal components analysis. Specifically, the 14x14 matrix $\underline{X}'\underline{X}$ was formed and rescaled to have units in the diagonal; then the latent roots of the rescaled matrix were calculated. The roots are presented in Table C-1.

Smoothing the Factors

After factorization, there were 636 summary parameters of migration propensity: two factor weights for each of the 53 counties, by 2 sex by 3 time period combinations. This was to be further reduced on the basis of analyses of variances.

For each factor, a standard analysis of variance was performed. The dependent variable was the factor score from the matrix $\underline{F}$. The independent variables were County (53 levels), Sex (2 levels), and Time Period (3 levels). The results are given in Table C-3. It can be seen that, for both factors, more than half of the variation was accounted for by County differences, and a large amount of variation was accounted for by County-by-Time interactions, that is, by county-specific trends over time, where county is defined as county, district, or regional area. In addition, there is a Time main effect and, for the second factor, a County-by-Sex interaction. (No analysis has been made of the covariance between the factors; even though they are uncorrelated over all the data, there may be interesting correlations at some level of aggregation.)

For the purposes of projection to the future, only the effects in the data which correspond to Time or interactions of Time and other variables (County and Sex) are important. That is, the overall mean and the main effects and interactions of County and Sex are presumably stable over time. So we have decomposed the factor results into a part which is influenced by time and a part which is stable. Furthermore, it is apparent in the analysis that the Sex-by-Time and County-by-Sex-by-Time interactions are essentially null. So the part influenced by time consists just of the Time main effect and the County-by-Time interaction. The values of these effects, together with those for County, Sex, and County-by-Sex, are given in Appendix 5.

The analyses of variances led, then, to two conclusions. First, the set of migration parameters in $\underline{F}$ could be adequately approximated by a smoothed version, $\underline{F}^*$, constructed by eliminating the Sex-by-Time and County-by-Sex-by-Time interactions. This would be used to construct an even smoother version of the original estimates, forming $\underline{X}^{**} = \underline{F}^* \underline{A}$. The twice-smoothed migration rates are given in Appendix 6. Second, the significant data for projection consisted of just the Time and County-by-Time effects. These have a total of only 106 degrees of freedom.

Projection to Future Rates

After the factorization and smoothing, there were two kinds of time trends which required projecting. First, the main effect for time had to be projected. Its values are given in Appendix 5 and are plotted in Figure C-2. Second, the County-by-Time interaction had to be projected. The values are also given in Appendix 5.

How does one project a non-monotonic curve? Between the first two time intervals, the overall migration rates dropped; between the second two intervals, the rates increased. What will happen next? Clearly there is no answer to this without either a very strong model for how migration rates change over time or additional information about the future trends in economics, immigration policy, etc. This is true at the provincial level, but it can also be shown that the majority of the time trends for counties, districts, and regional areas as calculated for the two factors are non-monotonic, so to project them would also require strong models or more information.

As a provisional solution to the practical requirement for obtaining population projections, the factored and smoothed migration rates for the 1966-1971 time period were used. That is, the last points in the time trends for the province and for the counties, districts, and regional areas were chosen as the most likely ones to predict the 1971-1976 migration rates. These rates are given together with the smoothed rates for the earlier time periods in Appendix 6.

TABLE C-1

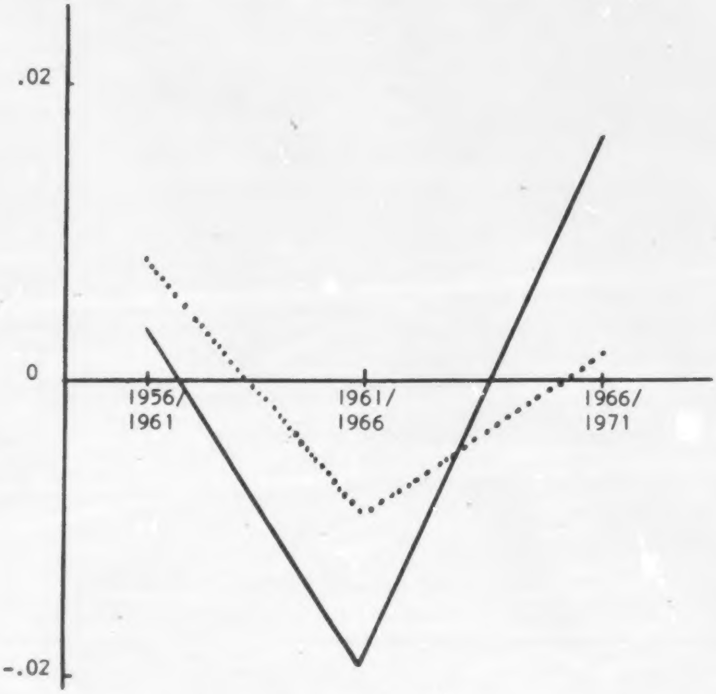
RESULTS OF THE FACTORIZATION FOR MIGRATION

Factor Number	Latent Roots	Cumulative % of Sum of Squares
1	8.51	61
2	2.31	77
3	.89	84
4	.61	88
5	.43	91
6	29	93
7	.26	95
8,...,14	<.20	100

Note: The matrix factored was X'X rescaled to have units in the diagonals. The cumulative % of sum of squares refers to the reproduction of that matrix.

FIGURE C-2

PLOT OF THE MAIN EFFECTS FCR TIME PERIOD



NOTE: The solid line refers to the first factor and the dotted line to the second.

TABLE C-2: THE FACTOR PATTERN FOR MIGRATION: MATRIX A

Age Group	Factor 1	Factor 2
1. 5 - 9	188	-16
2. 10 - 14	130	14
3. 15 - 19	95	118
4. 20 - 24	145	335
5. 25 - 29	333	48
6. 30 - 34	272	2
7. 35 - 39	192	-3
8. 40 - 44	117	22
9. 45 - 49	96	14
10. 50 - 54	66	6
11. 55 - 59	61	-14
12. 60 - 64	65	-53
13. 65 - 69	81	-98
14. 70 - 74	54	-52

TABLE C-3: RESULTS OF THE ANALYSES OF VARIANCE

Source of Variation	Degrees of Freedom	Factor 1 Mean Square	Factor 1 % of Variance	Factor 2 Mean Square	Factor 2 % of Variance
County	52	.01107	64.1	.00971	76.8
Sex	1	.00069	0.1	.00011	0.0
Time	2	.03433	7.6	.00785	2.4
County x Sex	52	.00013	0.8	.00025	2.0
County x Time	104	.00227	26.3	.00103	16.3
Sex x Time	2	.00074	0.2	.00083	0.3
County x Sex x Time	104	.00008	0.9	.00014	2.2
	317		100.0		100.0

APPENDIX 1: CALCULATION OF RAW SURVIVAL AND MIGRATION RATE ESTIMATES

The basic approach is to take one type of estimate of survival chances, p_{jkl}, and translate it into another type, s_{jkl}. This second survival rate is then used to compute a migration rate estimate, m_{jkl}, based also on population data, N_{jkl}.

The definitions are:

j - an age grouping (5 years)

l - sex

k - year (in 5-year intervals, e.g., if k is 1971, then k - 1 is 1966)

t - time within a 5-year interval (e.g., 0 is the beginning, 0.2 is the end of the first year)

p_{jkl} - probability that a person at the base age of age interval j will survive to the base age of interval j+1, at time k+1

s_{jkl} - probability that a randomly drawn person in age interval j will survive for one time period (5 years)

N_{jkl} - population in age interval j

m_{jkl} - estimated proportion of the population N_{jkl} which is accounted for by net migration within the preceding time interval--this may be negative

Two assumptions are required so that p may be transformed into s:

1. The population distribution within an age category is a direct function of the survival rate only. If the relative population (density function) at the beginning of the interval is N, then its value at the end is Np, and at the point t it is Np^t.
2. The probability that a person at point t within age category j will survive one time period (5 years) is proportional to the time which would be spent in each of the time periods j and j+1, that is, $p_j^{1-t} p_{j+1}^{t}$.

It follows from these assumptions that the weighted survival ratio, s, is:

$$s_j = \frac{\int p_j{}^t (p_j{}^{1-t} p_{j+1}{}^t)\,dt}{\int p_j{}^t\,dt}$$

which solves to:

$$s_j = p_j . \frac{1-p_{j+1}}{1-p_j} \cdot \frac{\log_e p_j}{\log_e p_{j+1}}$$

The migration rate estimate is computed in the standard manner:

$$m_j = \frac{N_j}{N_{j-1}} - s_{j-1}$$

APPENDIX 2: ORIGINAL ESTIMATES OF THE MIGRATION RATE BY COUNTY, SEX, AGE GROUP AND TIME PERIOD

NOTE: Each of the following pages contains the rates for one combination of Sex and Time Period. The rows on a page correspond to Counties (defined as counties, districts, or regional areas) and the columns to Age Groups (with intervals as indicated by the column headings). The figures are percentage excess of actual populations over the expected (based on the population in the previous time point and the earlier age group) relative to the earlier population.

1956-1961 MALES

COUNTY	AGE GROUP 5 9	10 14	15 19	20 24	25 29	30 34	35 39	40 44	45 49	50 54	55 59	60 64	65 69	70 74
1	4	0	-3	-13	-10	-5	-2	-1	0	-5	-4	-5	2	3
2	5	3	17	20	15	2	5	0	0	0	-1	-2	5	6
3	0	-2	-13	-29	-5	0	6	4	2	0	3	1	6	6
4	11	6	3	-9	10	12	7	7	3	1	6	8	6	7
5	15	6	-1	-20	3	5	4	0	-3	0	0	0	6	4
6	6	3	-1	-3	7	6	9	10	2	5	-2	-1	6	0
7	16	12	12	33	29	18	17	12	8	6	5	1	2	3
8	1	2	-12	-32	-8	2	2	-2	-5	0	-7	-1	6	5
9	5	3	11	0	-3	3	3	3	-1	0	2	-2	8	7
10	16	13	3	-16	12	32	29	10	9	8	13	7	20	10
11	-1	-1	-10	-23	-12	-14	-10	-6	-11	-9	-5	-4	5	1
12	6	3	5	-14	10	9	11	4	1	4	2	4	8	1
13	12	11	-5	-25	5	14	1	10	5	6	9	-3	12	-1
14	5	1	-5	-1	10	7	4	0	0	0	0	0	4	-1
15	12	4	-8	-16	6	7	14	9	0	5	8	3	3	-2
16	8	14	-11	-18	16	15	11	7	3	1	1	2	11	2
17	8	5	-2	-11	8	10	7	4	4	2	2	1	9	6
18	-3	-6	-4	-26	-20	-13	-12	-8	-1	-3	-1	1	12	-1
19	8	2	-4	-23	1	9	6	5	6	3	3	4	13	14
20	48	28	9	12	69	75	58	31	20	5	0	3	11	13
21	17	12	6	10	31	23	20	8	7	9	4	4	9	10
22	25	12	10	15	47	47	30	17	7	6	5	0	3	6
23	11	10	10	42	35	15	10	5	2	4	1	2	3	4
24	3	1	-2	-4	3	6	3	0	-1	0	-2	-2	4	4
25	4	1	-2	-10	6	2	8	2	1	4	2	2	3	7
26	6	5	-3	-4	8	6	4	0	0	0	0	0	4	4
27	5	4	1	17	21	8	5	0	2	2	1	1	6	0
28	4	3	6	-7	0	0	2	0	1	0	0	0	3	1
29	9	8	8	16	20	11	8	3	4	1	3	0	2	3
30	6	5	3	-1	4	4	4	2	6	2	2	0	4	0
31	3	3	-2	-5	-1	2	2	1	0	0	0	0	4	0
32	-1	-3	-7	-15	-7	-6	-6	-5	-6	-3	-2	-1	2	5
33	-1	-4	-8	-14	0	-3	0	-3	-2	0	-2	0	3	1
34	7	4	2	4	12	6	7	0	1	0	0	0	4	4
35	6	1	11	-21	-18	-4	-1	-2	-1	2	1	1	5	8
36	1	0	-3	-10	-2	2	0	0	0	0	0	-3	3	0
37	10	7	7	21	24	14	12	5	5	5	2	0	2	3
38	8	3	18	-11	3	6	5	2	2	3	0	0	4	6
39	4	1	-7	-26	-13	3	5	3	1	0	2	2	12	4
40	6	-2	-8	-24	1	9	8	3	2	-1	1	-6	10	0
41	1	-1	-7	-24	-1	-1	0	0	-3	0	-2	0	6	3
42	4	2	-9	-22	3	2	4	0	0	0	0	2	14	6
43	6	-2	-13	-26	0	3	5	3	11	0	4	0	8	0
44	10	5	7	-15	-7	1	2	0	1	0	2	2	10	2
45	31	22	15	17	23	20	18	11	6	-1	-3	-6	-1	0
46	4	-2	-8	-8	6	3	2	-1	-7	-5	-2	-5	-1	1
47	7	-3	-18	-38	-19	-4	0	11	-10	-7	9	0	14	8
48	8	2	-5	-6	4	12	9	8	1	2	5	5	12	2
49	3	-1	-5	17	16	5	2	-3	-2	-2	0	-3	2	0
50	-2	-7	-15	-18	0	0	-6	-7	-12	-5	-3	-3	3	0
51	1	0	-4	10	0	-6	-11	-9	-6	-12	-11	-10	-6	-6
52	2	-1	-13	-28	-15	-5	-2	-4	-4	-3	-4	-4	7	-5
53	9	2	-2	6	14	5	0	-3	-4	-4	-5	-7	1	-1

1956-1961 FEMALES

	AGE GROUP												
	5 9	10 14	15 19	20 24	25 29	30 34	35 39	40 44	45 49	50 54	55 59	60 64	65 69	70 74
COUNTY														
1	-4	-3	-13	-28	-8	-9	4	-7	-3	-8	-5	1	-2	2
2	3	2	5	21	2	5	6	3	0	3	1	-2	3	5
3	0	0	-18	-38	-2	0	3	1	3	0	-2	-7	0	12
4	8	4	-6	-15	19	9	2	3	0	6	4	-1	3	-2
5	10	6	-1	-24	0	8	0	-4	0	1	-1	-3	2	2
6	5	2	-3	-5	5	7	8	1	2	1	0	-4	5	6
7	16	12	20	32	16	17	13	7	7	6	3	1	5	10
8	0	-2	-17	-29	-1	-4	-2	-1	-6	-3	-8	-2	4	-2
9	8	1	-7	-1	8	11	6	1	0	-1	-1	-2	5	1
10	21	10	-7	-18	13	28	24	4	6	5	4	0	5	-6
11	-2	-1	-11	-20	-10	-7	-1	-8	-6	-3	-3	-7	3	0
12	7	0	-11	-4	15	8	6	0	1	0	3	-7	4	1
13	11	5	-9	-22	16	12	14	3	11	9	11	-4	-3	6
14	2	0	-6	1	7	4	1	0	0	0	0	-4	5	1
15	8	1	-13	-20	10	13	4	2	0	4	-3	-1	0	8
16	7	1	-7	-8	15	14	6	4	1	-3	5	0	5	1
17	8	3	0	-5	3	6	6	2	2	4	1	0	7	4
18	-7	-8	-14	-17	-1	-7	-7	-9	-2	-4	-4	-2	1	3
19	3	-1	-8	-23	-3	4	5	2	2	3	2	1	4	1
20	44	24	10	31	89	70	50	20	11	5	1	6	8	12
21	17	12	7	27	31	24	17	6	6	5	7	0	9	11
22	23	14	5	35	70	46	22	8	11	10	3	2	10	4
23	11	2	16	57	25	12	8	2	2	5	0	1	3	7
24	1	0	-3	-1	0	2	2	-2	0	0	0	-4	0	5
25	5	1	-6	-14	0	4	0	0	4	1	0	0	1	-1
26	4	1	-2	1	5	6	4	0	0	1	1	0	3	4
27	4	2	6	26	10	4	1	0	0	1	0	-1	0	4
28	3	1	-2	-10	-1	2	2	-1	3	0	-1	1	2	0
29	6	3	12	27	9	8	5	3	1	3	1	1	2	6
30	3	2	-3	-13	0	1	6	0	2	-1	3	-2	2	-4
31	6	3	-5	-9	4	5	3	0	-2	4	-3	-1	1	0
32	-1	-2	-6	-9	-4	-5	-3	-5	-4	-1	-1	-2	1	4
33	-1	-3	-7	-12	-4	-1	-2	-3	-3	-2	-1	-5	1	-1
34	3	1	-5	0	13	11	3	0	0	0	0	-1	-1	0
35	-4	-6	-6	-24	-1	-1	-4	-3	-1	1	1	-3	3	3
36	1	-1	-6	-13	-5	1	2	0	-1	-2	2	-6	0	3
37	9	7	17	22	11	9	9	5	3	1	3	-1	2	3
38	6	2	-1	-5	4	9	7	2	3	1	1	-1	5	4
39	6	-2	-18	-34	-6	1	2	3	-3	0	-1	0	6	-1
40	3	2	-17	-28	5	9	0	0	-4	-2	0	-1	2	8
41	0	-4	-11	-29	-5	-2	2	-3	0	-3	-3	0	2	3
42	3	0	-13	-24	3	2	9	-1	4	9	4	2	14	10
43	0	0	-18	-26	0	5	4	0	0	6	0	0	3	0
44	8	4	-5	-3	7	8	4	2	2	2	2	3	8	8
45	32	26	16	41	48	42	30	20	15	11	6	1	9	4
46	4	-2	-10	-14	5	3	0	-3	-5	-3	-3	-7	-2	-3
47	3	-5	-23	-46	-8	0	-2	-2	-9	-1	-2	0	10	5
48	7	2	-5	-4	7	11	7	4	4	0	4	0	3	-1
49	2	-2	-3	7	10	5	3	-1	0	-2	1	-1	-2	1
50	-3	-7	-17	-25	-7	-4	-6	-11	-10	-4	-6	-4	0	-3
51	0	-1	-8	5	6	2	0	-3	-4	-5	-7	-10	-3	0
52	-1	-2	-15	-25	-8	3	-2	-4	-4	-5	-5	0	-5	-4
53	7	2	2	8	14	8	7	0	1	0	0	-2	0	0

1961-1966 MALES

AGE GROUP

	5	10	15	20	25	30	35	40	45	50	55	60	65	70
COUNTY	9	14	19	24	29	34	39	44	49	54	59	64	69	74
1	-4	-3	-11	-18	-12	-2	-9	-4	-2	-4	0	5	2	7
2	2	1	16	26	4	0	-2	-1	-3	0	-3	0	1	3
3	-5	0	-17	-41	-24	-9	-2	-10	-9	-2	-3	0	5	11
4	0	-4	-6	-13	-1	-1	-5	-3	-8	-3	1	1	-1	5
5	10	5	-7	-24	-8	-3	-1	0	-1	1	-2	1	7	4
6	1	0	-4	-5	1	-3	0	0	0	0	0	0	3	1
7	8	7	3	15	13	5	7	7	3	2	-1	1	0	4
8	0	0	-11	-37	-20	-6	-3	-2	-7	0	-4	3	2	9
9	-6	-7	-9	-25	-22	-10	-10	-6	-10	-4	-2	0	4	4
10	-5	-10	-17	-39	-8	-8	-4	-7	-13	-11	-5	-2	-3	3
11	-1	-4	-7	-19	-9	-7	-3	-4	-2	-2	-2	0	0	3
12	9	2	9	-7	13	12	1	3	0	1	0	2	5	0
13	-23	-19	-27	-58	-28	-25	-20	-11	-12	-12	-7	17	24	8
14	-3	-4	-10	-17	-15	-12	-6	-4	-3	-6	-3	0	0	3
15	1	-2	-10	-18	8	5	7	-3	0	-1	1	1	0	3
16	9	10	-14	-22	9	8	6	3	0	3	1	3	9	3
17	4	0	-6	-9	9	5	0	0	0	0	-1	2	5	5
18	-8	-8	-4	-21	9	-6	-8	-9	-5	1	0	3	6	-1
19	5	1	-6	-20	-5	3	5	0	4	0	1	3	14	8
20	21	10	6	25	61	37	20	12	8	4	2	0	0	5
21	18	11	6	33	48	27	16	6	6	3	4	2	4	5
22	48	30	24	42	97	61	52	35	21	14	5	9	2	13
23	6	5	7	39	30	10	4	2	1	3	0	1	0	3
24	8	2	-2	-1	6	7	2	0	-1	-1	0	0	2	2
25	7	2	-3	-17	-1	4	5	1	-4	-2	0	2	6	2
26	8	2	-1	3	15	12	6	2	0	1	0	2	2	3
27	1	0	0	19	18	4	1	0	-1	0	0	2	1	1
28	-3	-5	-8	-22	-9	-8	-8	-8	-6	-2	-3	-1	-1	0
29	5	3	4	13	15	4	4	2	0	1	-1	0	1	3
30	-2	-3	-4	-21	-16	-6	-5	-5	-5	-2	-3	-1	3	4
31	5	0	-2	-6	-1	5	1	0	2	1	1	0	2	5
32	3	-1	-3	6	13	9	2	0	-1	0	-1	0	-1	0
33	4	1	0	-6	2	0	0	-1	0	0	-1	3	0	3
34	0	-2	-6	-3	0	0	-1	-2	0	0	-1	2	0	4
35	-3	-4	9	-17	-20	-6	0	-7	-3	2	0	3	3	4
36	5	0	-3	-10	-3	2	0	0	1	-1	-1	1	-1	-1
37	12	8	12	41	34	16	12	7	5	5	3	1	2	5
38	7	3	11	-9	4	6	4	4	1	1	1	3	5	8
39	0	1	-13	-38	-12	0	2	-1	-3	2	-2	4	7	4
40	12	3	-7	-26	9	11	14	2	-4	-2	1	6	7	3
41	0	0	-9	-31	-8	-3	3	1	-3	2	-2	4	3	3
42	5	0	-12	-31	-11	4	3	1	0	9	5	11	12	8
43	-6	-6	-18	-41	-21	-15	-6	-10	-2	-5	0	0	8	8
44	4	0	1	-21	-7	0	0	-2	-2	0	0	3	10	8
45	-10	-8	-10	-3	-4	-12	-11	-10	-11	-7	-7	-3	-1	3
46	-3	-7	-10	-15	-10	-4	-10	-10	-7	-3	-1	-3	-6	-5
47	-4	-7	-20	-47	-26	-18	0	-7	-11	7	-3	-6	9	0
48	-1	-3	-12	-23	-12	-3	-6	-2	-4	0	0	0	1	1
49	-4	-5	-6	1	-9	-12	-9	-10	-5	-2	-5	-4	-7	-1
50	-11	-9	-19	-38	-29	-21	-17	-13	-14	-7	-3	-3	-4	-1
51	-4	-4	-9	3	-6	-13	-12	-6	-4	-6	-2	-5	-5	-1
52	-8	-8	-18	-23	-10	-5	-13	-10	-12	-7	0	-3	0	3
53	-2	-3	-3	0	-2	-5	-7	-5	-4	-4	-4	0	0	-1

1961-1966 FEMALES

AGF GROUP

	5	10	15	20	25	30	35	40	45	50	55	60	65	70
COUNTY	9	14	19	24	29	34	39	44	49	54	59	64	69	74
1	-1	0	-14	-27	-6	-2	0	-11	0	1	-1	7	0	8
2	1	1	2	29	-1	0	2	1	-1	0	-4	0	4	9
3	-1	-7	-23	-43	-11	-3	-6	-10	-2	-4	-6	2	5	2
4	4	-5	-12	-15	5	-3	-7	-2	-4	-3	-2	1	1	5
5	5	3	-5	-23	-8	-4	-3	1	1	0	-2	3	7	7
6	1	0	1	-3	-2	-2	1	-1	0	-1	0	2	6	3
7	8	7	10	22	7	7	8	5	3	2	-2	2	4	7
8	-3	-2	-15	-31	-10	-8	-3	-3	-4	-2	-3	2	3	-1
9	-6	-5	-13	-19	-4	-8	-9	-9	-7	-4	0	3	4	5
10	-3	-10	-24	-35	-9	-2	-7	-13	-11	-9	-7	-2	1	0
11	0	-4	-7	-14	-7	-6	-4	-6	-1	-1	-1	1	6	2
12	9	0	0	1	20	2	2	0	1	1	0	-1	7	4
13	-16	-20	-27	-55	-17	-25	-11	-17	-6	-5	0	22	21	2
14	-5	-4	-9	-19	-8	-6	-2	-5	-3	-2	-1	0	4	4
15	5	-3	-9	-12	21	1	5	-1	-4	-4	4	3	3	2
16	7	3	-3	-14	12	6	2	0	1	0	3	6	6	1
17	1	0	0	-2	2	3	0	-1	0	0	0	6	7	8
18	-6	-9	-14	-24	8	-8	-4	-7	-2	1	3	2	5	-5
19	6	4	-1	-29	0	12	1	2	1	2	0	1	7	8
20	22	14	3	30	58	31	18	8	5	2	0	7	3	10
21	20	9	8	42	42	23	11	7	6	5	1	4	9	1
22	49	31	22	62	110	71	43	27	18	10	6	15	12	13
23	7	5	13	52	20	8	5	2	2	3	0	3	2	8
24	7	1	0	0	1	3	3	-1	0	0	-4	1	2	6
25	6	1	-8	-15	4	6	5	1	0	0	0	0	-1	0
26	8	2	0	3	9	8	4	0	1	0	0	3	3	4
27	1	0	2	21	9	1	0	0	-1	-1	0	1	2	6
28	-3	-3	-6	-16	-7	-6	-6	-6	-1	-3	-2	0	-2	-2
29	5	4	9	28	4	5	3	2	1	0	0	2	1	6
30	-3	-4	-8	-22	-9	-4	-4	-7	-3	-4	-1	0	2	1
31	7	2	-2	-6	4	2	1	1	1	0	-1	4	6	6
32	3	0	0	2	6	3	1	-2	-1	-2	-1	1	2	2
33	2	1	3	-4	0	0	0	0	-1	0	0	1	5	2
34	0	-2	-6	-5	4	0	-2	-2	-2	0	0	0	1	3
35	-2	-2	-12	-33	-3	-2	-1	-3	-3	-1	-2	4	4	2
36	6	1	-3	-10	0	3	1	-1	0	-3	1	-1	0	1
37	12	9	19	37	20	13	9	6	3	5	3	4	4	5
38	8	2	0	3	8	5	4	0	4	0	0	4	6	5
39	5	-1	-16	-35	0	5	1	0	-3	1	1	4	3	5
40	12	6	-9	-29	16	15	5	9	-4	2	2	5	10	13
41	0	0	-9	-27	-3	1	3	-1	-1	1	0	4	2	6
42	3	0	-10	-31	0	1	6	0	4	6	-1	14	12	7
43	-6	-3	-20	-43	-8	-1	-9	-4	-3	-4	-1	0	1	6
44	4	0	-4	-13	-2	2	-3	0	-1	0	2	6	9	6
45	-9	-8	-9	0	-6	-10	-9	-10	-9	-4	-3	-3	-1	1
46	-4	-6	-12	-16	-5	-9	-6	-11	-6	-7	-4	-7	-6	-4
47	-7	-8	-23	-47	-13	-12	-1	-12	-6	1	-6	0	3	5
48	-2	-3	-8	-20	-4	-4	-3	-2	-4	0	0	5	4	1
49	-3	-5	-7	-6	-6	-7	-6	-7	-5	-5	-4	-3	0	2
50	-10	-10	-18	-32	-20	-13	-10	-12	-9	-5	-6	-3	-3	5
51	-4	-6	-11	-5	1	-8	-3	-5	-4	-4	-5	2	4	-4
52	-7	-11	-14	-26	-6	-5	-11	-12	-6	-7	-10	4	-3	8
53	-2	-4	-4	-3	-4	-2	-2	-6	-4	-4	-2	0	0	5

1966-1971 MALES

	AGE GROUP													
	5 9	10 14	15 19	20 24	25 29	30 34	35 39	40 44	45 49	50 54	55 59	60 64	65 69	70 74
COUNTY														
1	3	2	-3	-12	-4	8	1	2	-2	-4	1	-2	9	4
2	0	-1	-1	2	-6	-4	-5	-4	-6	-5	-4	-1	-1	-3
3	9	1	-6	-31	-7	9	6	2	3	6	0	5	10	0
4	5	3	-1	-13	-2	6	4	-1	1	-3	1	3	6	0
5	8	3	-4	-14	1	6	5	1	0	1	1	1	4	2
6	2	3	0	-12	-3	-1	1	0	-1	-2	-2	-1	2	-6
7	9	8	9	20	23	13	8	8	4	2	0	0	-1	-3
8	2	7	-3	-28	2	8	3	-1	0	1	-2	3	8	0
9	0	-1	-6	-16	0	3	0	-4	-4	-7	-1	1	7	1
10	9	5	-1	-13	29	3	7	6	-1	11	12	4	19	14
11	2	0	-2	-12	0	5	0	-1	-1	-3	-3	4	3	4
12	10	4	1	-22	0	10	7	5	3	2	3	3	8	1
13	20	28	12	-18	52	27	24	10	14	4	7	31	36	15
14	8	1	0	-11	0	11	8	3	0	-5	2	6	9	7
15	9	5	0	0	39	27	22	7	6	4	8	1	11	4
16	9	4	-4	-9	12	8	8	3	10	6	3	9	20	7
17	3	2	0	-6	7	11	7	3	5	1	4	4	11	5
18	-9	-4	-8	-31	-11	-18	-18	0	8	1	7	7	16	4
19	20	8	1	-15	4	24	12	14	10	6	10	17	25	16
20	20	11	7	8	46	52	24	13	9	6	6	10	16	9
21	13	7	2	0	17	21	13	6	4	1	2	0	3	2
22	42	27	22	45	96	84	48	29	23	14	10	9	8	7
23	1	-1	5	35	34	11	3	0	0	-1	0	0	-1	-2
24	5	0	2	-1	1	7	8	3	5	2	4	1	3	0
25	13	11	8	-12	5	17	8	8	3	3	8	4	7	7
26	5	2	1	-6	2	6	3	1	1	0	0	1	2	1
27	0	-1	0	10	5	2	0	-2	-1	-2	-1	-1	-1	-1
28	10	4	5	-1	10	15	8	4	4	0	1	0	3	0
29	8	5	7	16	23	11	9	3	3	3	2	2	4	3
30	6	6	4	-11	6	7	6	2	5	2	2	5	7	1
31	4	1	3	-2	3	12	0	1	3	0	3	3	0	2
32	4	1	1	7	13	11	6	3	2	0	0	2	1	-1
33	3	2	0	-7	0	2	6	0	0	-1	5	-1	3	0
34	3	0	0	-2	3	6	4	3	-1	0	-1	1	0	-1
35	3	-2	-7	-34	-22	-2	-6	-4	-6	-6	-1	1	6	1
36	4	3	5	-10	-1	6	4	2	2	0	1	0	0	-2
37	7	5	9	30	20	14	8	5	5	2	3	1	3	2
38	14	7	13	5	18	21	12	10	5	5	4	0	7	1
39	17	11	-1	-14	22	17	19	10	8	9	4	7	13	7
40	35	25	6	-7	44	48	42	16	23	13	8	6	6	5
41	9	6	1	-15	9	13	9	5	8	2	3	6	8	0
42	28	15	8	-7	32	38	23	14	16	11	10	19	23	0
43	13	4	-1	-22	13	13	15	10	5	4	10	16	14	6
44	18	10	8	-7	17	23	15	8	6	3	9	14	23	7
45	1	0	0	1	6	6	1	-2	-1	-1	0	0	2	3
46	-3	-7	-7	-13	-4	-8	-10	-11	-8	-10	-5	-6	-4	-6
47	11	6	-7	-34	-2	17	22	-5	8	0	-9	9	13	2
48	9	3	-3	-14	9	15	5	4	-1	-2	0	0	6	0
49	7	1	2	29	29	16	9	0	0	-2	-3	-2	-5	-6
50	-4	-2	-6	-23	-3	3	-4	-4	-3	-4	0	-1	2	2
51	-6	-7	-8	-9	-9	-9	-6	-13	-10	-8	-9	-9	-8	-5
52	-5	-5	-6	-13	3	6	-5	-2	-3	-3	0	-1	0	7
53	-3	-2	-5	-5	1	-1	-7	-7	-7	-5	-3	-3	0	-2

1966-1971 FEMALES

AGE GROUP

COUNTY	5	10	15	20	25	30	35	40	45	50	55	60	65	70
	9	14	19	24	29	34	39	44	49	54	59	64	69	74
1	2	-2	-7	-22	0	6	0	1	2	-5	-1	5	8	5
2	4	-1	3	26	-5	2	3	-7	-2	-3	0	2	6	2
3	8	2	-6	-30	0	14	7	4	2	-5	2	7	6	0
4	5	-3	-6	-17	12	6	7	1	1	0	0	7	4	0
5	8	2	0	-17	2	6	3	0	-1	0	2	4	6	-1
6	5	0	1	-11	-3	4	0	-1	-2	-2	1	0	1	-7
7	8	7	12	24	14	9	9	6	2	1	1	3	4	2
8	4	1	-5	-25	2	2	2	5	1	-2	1	5	3	1
9	0	-3	-9	-20	13	0	0	-4	-4	-4	0	1	5	2
10	4	1	-6	-18	21	5	-6	5	2	0	6	3	4	10
11	4	-1	0	-14	-4	1	3	0	-2	1	0	0	6	0
12	6	4	-3	-19	16	11	9	0	3	0	3	0	13	6
13	29	19	2	-21	44	20	30	2	17	1	24	37	16	2
14	5	1	0	-13	4	5	6	0	0	-2	1	7	7	3
15	9	4	-1	-13	34	14	6	1	8	1	9	1	8	1
16	10	3	-2	-17	12	5	9	3	9	3	9	9	7	4
17	5	2	0	-6	1	7	4	1	4	4	4	4	9	7
18	-5	-4	-4	-31	-5	-10	-6	-6	2	7	7	3	5	-2
19	14	12	7	-22	18	20	11	8	7	6	14	21	20	7
20	20	10	6	13	55	38	15	10	8	6	10	15	16	15
21	14	6	3	4	22	17	11	5	3	1	3	3	7	0
22	44	26	21	70	107	64	38	24	19	13	13	18	17	20
23	1	-1	9	46	18	4	0	-2	0	0	0	1	3	2
24	4	1	3	-3	2	3	3	-1	2	0	0	2	5	2
25	7	3	-3	-16	10	16	9	2	2	4	3	2	8	2
26	6	2	1	-4	6	5	3	0	0	0	2	3	4	1
27	0	-1	3	12	-1	-1	-1	-4	-2	-2	0	0	0	0
28	9	3	2	-1	10	12	6	0	3	-4	1	0	1	0
29	7	5	9	29	7	7	5	2	3	2	3	3	5	5
30	2	4	0	-11	8	7	5	4	3	0	2	2	4	-1
31	5	1	2	-8	4	5	2	0	0	0	1	0	1	1
32	4	1	2	7	8	7	2	0	1	0	2	2	3	0
33	3	0	0	-11	0	3	2	0	0	1	2	1	3	3
34	2	0	-1	-6	9	5	2	0	0	-1	-1	1	4	1
35	2	0	-11	-27	2	1	-5	-8	-4	-2	1	6	0	0
36	1	2	2	-14	0	5	5	0	0	-2	4	0	0	0
37	7	6	14	30	13	9	9	3	5	4	5	4	6	5
38	11	7	6	18	20	20	13	6	6	5	7	4	8	5
39	18	8	-5	-22	28	24	12	5	7	4	7	7	13	8
40	48	25	2	-3	69	56	35	18	12	7	5	7	2	-2
41	12	9	0	-17	7	13	10	5	4	2	4	3	5	0
42	21	19	9	-9	40	25	19	13	11	8	11	21	15	-1
43	10	6	-9	-26	23	13	7	7	7	10	10	5	14	0
44	16	8	4	0	24	21	13	9	7	7	13	17	18	5
45	0	-2	-1	0	6	0	-1	-2	-2	-1	1	2	8	5
46	-4	-7	-8	-13	0	-7	-6	-10	-7	-9	-3	-12	-7	-6
47	2	2	-12	-32	11	7	10	-7	10	0	3	5	7	0
48	8	0	-2	-13	13	6	5	0	-1	-3	1	3	1	0
49	7	-1	1	15	20	8	3	-2	-2	-1	-2	-3	-2	-3
50	0	-3	-6	-23	-4	0	-4	-9	-1	-4	-3	-1	-2	1
51	-6	-12	-10	-8	0	-9	-10	-12	-7	-6	-6	-9	-15	-13
52	-6	-8	-11	-27	5	-1	-4	-7	-5	-3	-1	-3	0	4
53	0	-3	-2	-5	0	0	-5	-4	-2	-5	0	-4	-1	0

APPENDIX 3: THE MATRIX F: SUMMARY PARAMETER VALUES FOR THE TWO FUNCTIONS BY TIME PERIOD, SEX AND COUNTY

(Note: The values are printed × 1000)

	Factor 1						Factor 2					
	Males			Females			Males			Females		
County	1956 1961	1961 1966	1966 1971	1956 1961	1961 1966	1966 1971	1956 1961	1961 1966	1966 1971	1956 1961	1961 1966	1966 1971
1	-18	-23	6	-40	-10	4	-22	-77	-47	-57	-91	-73
2	28	4	-32	26	10	0	30	44	13	16	5	-4
3	9	-39	26	-6	-44	20	-85	-120	-76	-72	-106	-68
4	55	-20	10	30	-21	16	-50	-45	-39	-20	-59	-52
5	18	4	18	7	5	16	-46	-64	-39	-28	-66	-39
6	32	0	-9	23	5	-6	-6	-23	2	-24	-30	0
7	88	38	44	82	42	47	50	20	57	36	15	26
8	-15	-23	12	-35	-33	13	-73	-91	-52	-56	-67	-56
9	24	-51	-17	11	-37	-10	-12	-70	-57	-21	-81	-62
10	114	-69	74	62	-73	30	-89	-75	-98	-21	-84	-67
11	-55	-26	-2	-39	-20	3	-55	-44	-41	-40	-55	-33
12	40	28	37	11	22	36	-28	-3	-46	-21	-18	-67
13	52	-86	160	57	-61	146	-42	-224	-156	-31	-217	-135
14	8	-39	24	4	-25	18	-13	-49	-66	-15	-62	-54
15	42	0	78	16	4	53	-36	-47	-30	-48	-55	-39
16	48	33	62	25	24	55	-60	-78	-90	-36	-55	-64
17	39	10	40	31	15	37	-45	-47	-48	-26	-55	-53
18	-37	-26	-1	-44	-24	-2	-66	-54	-107	-52	-61	-59
19	47	23	110	15	25	105	-95	-91	-136	-53	-64	-112
20	201	97	125	186	93	125	3	39	-44	19	4	-70
21	94	86	51	90	81	52	-19	23	-2	-3	33	-7
22	118	237	230	121	231	238	23	72	64	24	47	10
23	64	41	17	61	47	17	45	50	55	60	46	43
24	5	12	29	2	10	15	-21	-20	-7	-15	-20	-18
25	29	9	64	6	6	38	-42	-52	-37	-21	-27	-48
26	17	27	15	17	22	19	-27	-14	-14	-21	-19	-24
27	33	11	-8	20	11	-9	5	7	17	28	-2	10
28	12	-43	36	6	-34	20	-4	-34	4	-22	-17	0
29	47	22	47	38	29	43	22	16	10	26	23	11
30	29	-31	38	5	-31	25	-1	-47	-28	-10	-51	-16
31	9	14	23	8	19	12	-15	-30	-10	-17	-46	-11
32	-29	5	25	-21	1	19	-50	6	8	-34	-14	-2
33	-15	2	12	-25	7	12	-41	-24	-14	-18	-21	-31
34	24	-5	5	9	-6	5	-7	-30	0	0	-31	-24
35	9	-10	-29	-15	-18	-17	-37	-34	-77	-47	-77	-67
36	-2	-1	16	-7	0	9	-16	-9	7	-22	-19	-11
37	58	73	51	48	70	59	27	50	34	43	43	19
38	35	35	69	27	28	74	-2	-24	14	-26	-29	-6
39	16	-3	90	-8	3	80	-81	-94	-65	-75	-95	-90
40	10	25	165	-3	44	152	-48	-76	-7	-79	-106	12
41	-4	-3	51	-17	2	46	-59	-68	-35	-63	-73	-31
42	18	34	141	36	29	125	-88	-123	-67	-108	-114	-51
43	21	-41	77	4	-36	67	-66	-121	-101	-62	-97	-75
44	22	9	95	35	10	100	-38	-73	-86	-57	-78	-78
45	70	-65	3	154	-55	3	80	-27	-15	59	-22	-43
46	-19	-53	-68	-25	-63	-67	-17	-10	0	-6	-5	19
47	-2	-46	32	-26	-50	20	-136	-97	-89	-127	-109	-77
48	43	-26	18	26	-15	11	-58	-51	-30	-14	-62	-29
49	0	-52	13	1	-41	1	4	11	68	3	-21	36
50	-47	-92	-22	-62	-74	-31	-57	-68	-44	-43	-69	-31
51	-63	-50	-79	-30	-35	-81	49	7	18	18	-32	49
52	-35	-63	-16	-39	-60	-35	-50	-70	-41	-30	-77	-58
53	-9	-32	-37	17	-24	-24	14	-6	-9	17	-33	-2

APPENDIX 4: ESTIMATES OF THE MIGRATION RATE BY COUNTY, SEX, AGE GROUP AND TIME PERIOD, SMOOTHED BY THE FACTORIZATION

NOTE: Each of the following pages contains the rates for one combination of Sex and Time Period. The rows on a page correspond to Counties (defined as counties, districts, or regional areas) and the columns to Age Groups (with intervals as indicated by the column headings). The figures are percentage excess of actual populations over the expected (based on the population in the previous time point and the earlier age group) relative to the earlier population.

```
1956-1961 MALES

                                             A G E   G R O U P
              5    10    15    20    25    30    35    40    45    50    55    60    65    70
              9    14    19    24    29    34    39    44    49    54    59    64    69    74
COUNTY

      1      -3    -2    -4   -10    -7    -5    -3    -2    -2    -1     0     0     0     0
      2       4     4     6    14    10     7     5     3     3     2     1     0     0     0
      3       3     0    -9   -27    -1     2     2     0     0     0     1     5     9     4
      4      11     6     0    -8    15    14    10     5     4     3     4     6     9     5
      5       4     1    -3   -12     3     4     3     1     1     0     1     3     6     3
      6       6     4     2     2    10     8     6     3     3     2     2     2     3     2
      7      15    12    14    29    31    24    16    11     9     6     4     3     2     2
      8      -1    -3   -10   -26    -8    -4    -2    -3    -2    -1     0     2     5     2
      9       4     2     0     0     7     6     4     2     2     1     1     2     3     1
     10      23    13     0   -13    33    31    22    11     9     7     8    12    18    10
     11      -9    -8   -11   -26   -21   -15   -10    -7    -6    -3    -2     0     1     0
     12       8     4     0    -3    12    11     7     4     3     2     2     4     6     3
     13      10     6     0    -6    15    14    10     5     4     3     3     5     8     5
     14       1     0     0    -3     2     2     1     0     0     0     0     1     2     1
     15       8     4     0    -6    12    11     8     4     3     2     3     4     7     4
     16      10     5    -2   -13    13    13     9     4     3     2     3     6     9     5
     17       8     4    -1    -9    10    10     7     3     3     2     3     5     7     4
     18      -5    -5   -11   -27   -15   -10    -6    -5    -4    -2    -1     1     3     1
     19      10     4    -6   -24    11    12     9     3     3     2     4     8    13     7
     20      37    26    19    30    67    54    38    23    19    13    12    12    15    10
     21      18    12     6     7    30    25    18    10     8     6     6     7     9     6
     22      21    15    14    24    40    32    22    14    11     7     6     6     7     5
     23      11     9    11    24    23    17    12     8     6     4     3     1     0     1
     24       1     0    -1    -6     0     1     1     0     0     0     0     1     2     1
     25       6     3    -2   -10     7     7     5     2     2     1     2     4     6     3
     26       3     1    -1    -6     4     4     3     1     1     0     1     2     4     2
     27       6     4     3     6    11     9     6     4     3     2     1     1     2     1
     28       2     1     0     0     3     3     2     1     1     0     0     1     1     0
     29       8     6     7    14    16    12     9     6     4     3     2     1     1     1
     30       5     3     2     3     9     8     5     3     2     1     1     2     2     1
     31       2     1     0    -3     2     2     1     0     0     0     0     1     2     1
     32      -4    -4    -8   -21   -12    -8    -5    -4    -3    -2    -1     0     2     0
     33      -2    -2    -6   -16    -7    -4    -2    -2    -2    -1     0     1     2     1
     34       4     3     1     0     7     6     4     2     2     1     1     2     2     1
     35       2     0    -3   -11     1     2     1     0     0     0     1     2     4     2
     36       0     0    -2    -5    -1     0     0     0     0     0     0     0     1     0
     37      10     7     8    17    20    15    11     7     5     3     3     2     1     1
     38       6     4     3     4    11     9     6     4     3     2     2     2     3     2
     39       4     1    -7   -24     1     4     3     0     0     0     2     5     9     5
     40       2     0    -4   -14     1     2     2     0     0     0     1     3     5     3
     41       0    -1    -7   -20    -4    -1     0    -1    -1     0     0     2     5     2
     42       4     1    -8   -26     1     4     3     0     0     0     2     5    10     5
     43       5     1    -5   -19     3     5     4     1     1     1     2     4     8     4
     44       4     2    -2    -9     5     6     4     1     1     1     1     3     5     3
     45      11    10    16    37    27    19    13    10     7     5     3     0    -2     0
     46      -3    -2    -3    -8    -7    -5    -3    -2    -2    -1     0     0     0     0
     47       1    -2   -16   -45    -7    -1     0    -3    -2    -1     1     7    13     6
     48       9     4    -2   -13    11    11     8     3     3     2     3     5     9     5
     49       0     0     0     1     0     0     0     0     0     0     0     0     0     0
     50      -7    -6   -11   -25   -18   -12    -8    -6    -5    -3    -2     0     1     0
     51     -12    -7     0     7   -18   -17   -12    -6    -5    -3    -4    -6   -10    -5
     52      -5    -5    -9   -22   -14    -9    -6    -5    -4    -2    -1     0     2     0
     53      -2    -1     0     3    -2    -2    -1     0     0     0     0    -1    -2    -1
```

1956-1961 FEMALES

	AGE GROUP													
	5	10	15	20	25	30	35	40	45	50	55	60	65	70
COUNTY	9	14	19	24	29	34	39	44	49	54	59	64	69	74
1	-6	-6	-10	-25	-16	-11	-7	-6	-4	-2	-1	0	2	0
2	4	3	4	9	9	7	5	3	2	1	1	0	0	0
3	0	-1	-9	-25	-5	-1	0	-2	-1	0	0	3	6	3
4	6	3	0	-2	9	8	5	3	2	1	2	3	4	2
5	1	0	-2	-8	0	1	1	0	0	0	0	1	3	1
6	4	2	0	-4	6	6	4	2	1	1	1	2	4	2
7	14	11	12	23	29	22	15	10	8	5	4	3	3	2
8	-5	-5	-10	-24	-14	-9	-6	-5	-4	-2	-1	0	2	1
9	2	1	-1	-5	2	3	2	0	0	0	0	1	2	1
10	12	7	3	1	19	16	12	6	5	3	4	5	7	4
11	-6	-5	-8	-19	-14	-10	-7	-5	-4	-2	-1	0	0	0
12	2	1	-1	-5	2	3	2	0	0	0	1	1	3	1
13	11	7	1	-2	17	15	11	6	5	3	3	5	7	4
14	1	0	-1	-4	0	1	0	0	0	0	0	1	1	1
15	3	1	-4	-13	3	4	3	0	0	0	1	3	6	3
16	5	2	-1	-8	6	6	4	2	1	1	2	3	5	3
17	6	3	0	-4	9	8	6	3	2	1	2	3	5	3
18	-7	-6	-10	-23	-17	-12	-8	-6	-5	-3	-1	0	1	0
19	3	1	-4	-15	2	4	3	0	0	0	1	3	6	3
20	34	24	20	33	62	50	35	22	18	12	10	11	13	9
21	17	11	8	11	30	24	17	10	8	5	5	6	7	5
22	22	16	14	25	41	33	23	14	12	8	7	6	7	5
23	10	8	13	29	23	17	11	8	6	4	2	0	0	0
24	0	0	-1	-4	0	0	0	0	0	0	0	1	1	0
25	1	0	-1	-6	1	1	1	0	0	0	0	1	2	1
26	3	1	0	-4	4	4	3	1	1	0	1	2	3	2
27	3	3	5	12	8	5	3	3	2	1	0	0	-1	0
28	1	0	-1	-6	1	1	1	0	0	0	0	1	2	1
29	6	5	6	14	14	10	7	5	4	2	1	1	0	0
30	1	0	0	-2	1	1	1	0	0	0	0	0	1	0
31	1	0	-1	-4	1	2	1	0	0	0	0	1	2	1
32	-3	-3	-6	-14	-8	-6	-4	-3	-2	-1	0	0	1	0
33	-4	-3	-4	-10	-9	-7	-4	-3	-2	-1	-1	0	0	0
34	1	1	0	1	3	2	1	1	0	0	0	0	0	0
35	-2	-2	-7	-18	-7	-4	-2	-2	-2	-1	0	1	3	1
36	-1	-1	-3	-8	-3	-2	-1	-1	-1	0	0	0	1	0
37	8	6	9	21	18	13	9	6	5	3	2	0	0	0
38	5	3	0	-5	7	7	5	2	2	1	2	3	4	2
39	0	-2	-9	-26	-6	-2	-1	-2	-1	-1	0	3	6	3
40	0	-1	-9	-27	-4	-1	0	-2	-1	0	0	4	7	3
41	-2	-3	-9	-23	-8	-4	-3	-3	-2	-1	0	2	4	2
42	8	3	-9	-31	6	9	7	1	1	1	3	8	13	7
43	1	0	-6	-20	-1	1	1	0	0	0	1	3	6	3
44	7	3	-3	-13	9	9	7	2	2	2	2	5	8	4
45	28	20	21	42	54	42	29	19	15	10	8	6	6	5
46	-4	-3	-3	-5	-8	-7	-4	-3	-2	-1	-1	-1	-1	-1
47	-2	-5	-17	-46	-14	-7	-4	-5	-4	-2	0	5	10	5
48	5	3	0	0	8	7	5	2	2	1	1	2	3	2
49	0	0	0	1	0	0	0	0	0	0	0	0	0	0
50	-10	-8	-11	-23	-22	-16	-11	-8	-6	-4	-3	-1	0	-1
51	-6	-3	0	1	-9	-8	-5	-3	-2	-1	-2	-3	-4	-2
52	-6	-5	-7	-15	-14	-10	-7	-5	-4	-2	-1	0	0	0
53	3	2	3	8	6	4	3	2	1	1	0	0	0	0

1961-1966 MALES

AGE GROUP

COUNTY	5	10	15	20	25	30	35	40	45	50	55	60	65	70
	9	14	19	24	29	34	39	44	49	54	59	64	69	74
1	-3	-4	-11	-29	-11	-6	-4	-4	-3	-1	0	2	5	2
2	0	1	5	15	3	1	0	1	1	0	0	-2	-4	-2
3	-5	-6	-17	-46	-18	-10	-7	-7	-5	-3	0	3	8	4
4	-3	-3	-7	-18	-9	-5	-3	-3	-2	-1	0	1	2	1
5	1	0	-7	-20	-1	0	0	0	0	0	1	3	6	3
6	0	0	-2	-7	-1	0	0	0	0	0	0	1	2	1
7	6	5	6	12	13	10	7	4	3	2	2	1	1	1
8	-2	-4	-13	-34	-12	-6	-4	-4	-3	-2	0	3	7	3
9	-8	-7	-13	-30	-20	-14	-9	-7	-5	-3	-2	0	2	0
10	-11	-10	-15	-35	-26	-19	-13	-9	-7	-5	-3	0	1	0
11	-4	-4	-7	-18	-10	-7	-4	-4	-3	-2	0	0	2	0
12	5	3	2	2	9	7	5	3	2	1	1	2	2	1
13	-12	-14	-34	-87	-39	-24	-15	-15	-11	-7	-2	6	15	6
14	-6	-5	-9	-22	-15	-10	-7	-5	-4	-2	-1	0	1	0
15	0	0	-5	-15	-2	0	0	0	0	0	0	2	4	2
16	7	3	-6	-21	7	8	6	2	2	1	3	6	10	5
17	2	0	-4	-14	1	2	2	0	0	0	1	3	5	3
18	-4	-4	-8	-22	-11	-7	-5	-4	-3	-2	0	1	3	1
19	5	1	-8	-27	3	6	4	0	0	0	2	6	10	6
20	17	13	13	27	34	26	18	12	9	6	5	4	3	3
21	15	11	11	20	29	23	16	10	8	5	4	4	4	3
22	43	32	31	58	82	64	45	29	23	16	13	11	12	9
23	6	6	9	22	16	11	7	5	4	3	1	0	-1	0
24	2	1	-1	-5	3	3	2	0	0	0	1	1	3	1
25	2	0	-5	-16	0	2	1	0	0	0	1	3	5	3
26	5	3	0	0	8	7	5	2	2	1	1	2	3	2
27	1	1	1	4	4	3	2	1	1	0	0	0	0	0
28	-7	-6	-8	-17	-16	-11	-8	-5	-4	-3	-2	-1	0	0
29	3	3	4	8	8	6	4	2	2	1	1	0	0	0
30	-5	-4	-8	-20	-12	-8	-5	-4	-3	-2	-1	0	2	0
31	3	1	-2	-8	3	3	2	1	0	0	1	2	4	2
32	0	0	1	2	1	1	0	0	0	0	0	0	0	0
33	0	0	-2	-7	0	0	0	0	0	0	0	1	2	1
34	0	-1	-4	-11	-3	-1	0	-1	0	0	0	1	2	1
35	-1	-1	-5	-12	-5	-2	-1	-1	-1	0	0	1	2	1
36	0	0	-1	-3	0	0	0	0	0	0	0	0	0	0
37	12	10	12	27	26	19	13	9	7	5	3	2	1	1
38	7	4	0	-2	10	9	6	3	3	2	2	3	5	3
39	0	-1	-11	-32	-5	-1	0	-7	-1	0	1	4	8	4
40	6	2	-6	-21	4	6	5	[illegible]	1	1	2	5	9	5
41	0	-1	-8	-23	-4	-1	0	[illegible]	-1	0	0	3	6	3
42	8	2	-11	-36	5	9	6	1	1	1	3	8	14	8
43	-5	-7	-18	-46	-19	-11	-7	-7	-5	-3	0	3	8	4
44	2	0	-7	-23	0	2	2	0	0	0	1	4	7	4
45	-11	-8	-9	-18	-23	-17	-12	-8	-6	-4	-3	-2	-2	-2
46	-9	-7	-6	-11	-18	-14	-10	-6	-5	-3	-3	-2	-3	-2
47	-7	-7	-15	-39	-20	-12	-8	-7	-5	-3	-1	2	5	2
48	-4	-4	-8	-21	-11	-7	-4	-4	-3	-2	0	1	2	1
49	-10	-6	-3	-3	-16	-14	-10	-5	-4	-3	-3	-4	-5	-3
50	-16	-12	-16	-36	-33	-25	-17	-12	-9	-6	-4	-2	0	-1
51	-9	-6	-3	-4	-16	-13	-9	-5	-4	-3	-3	-3	-4	-3
52	-10	-9	-14	-32	-24	-17	-11	-9	-7	-4	-2	0	1	0
53	-6	-4	-3	-6	-11	-8	-6	-3	-3	-2	-1	-1	-1	-1

1961-1966 FEMALES

	AGE GROUP													
	5	10	15	20	25	30	35	40	45	50	55	60	65	70
	9	14	19	24	29	34	39	44	49	54	59	64	69	74
COUNTY														
1	0	-2	-11	-32	-7	-3	-1	-3	-2	-1	0	4	8	4
2	1	1	1	3	3	2	2	1	1	0	0	0	0	0
3	-6	-7	-16	-42	-20	-12	-8	-7	-5	-3	-1	2	6	3
4	-3	-3	-9	-23	-9	-5	-3	-3	-2	-1	0	1	4	1
5	2	0	-7	-21	-1	1	1	0	0	0	1	3	7	3
6	1	0	-3	-9	0	1	1	0	0	0	0	1	3	1
7	7	5	5	11	14	11	8	5	4	2	2	1	1	1
8	-5	-5	-11	-27	-14	-9	-6	-5	-4	-2	-1	1	3	1
9	-5	-6	-13	-32	-16	-10	-6	-6	-4	-2	-1	1	4	2
10	-12	-10	-16	-38	-28	-20	-13	-10	-8	-5	-3	0	2	0
11	-2	-3	-8	-21	-9	-5	-3	-3	-2	-1	0	1	3	1
12	4	2	0	-2	6	6	4	2	1	1	1	2	3	2
13	-8	-11	-31	-81	-31	-17	-11	-12	-8	-5	0	7	16	7
14	-3	-4	-9	-24	-11	-7	-4	-4	-3	-2	0	1	4	1
15	1	0	-6	-17	-1	1	1	0	0	0	1	3	5	3
16	5	2	-4	-15	5	6	4	1	1	1	2	4	7	4
17	3	1	-4	-16	2	4	3	0	0	0	1	3	6	3
18	-3	-4	-4	-24	-11	-6	-4	-4	-3	-2	0	1	3	1
19	5	2	-5	-17	5	6	5	1	1	1	2	5	8	4
20	17	12	9	15	31	25	18	11	9	6	5	5	7	4
21	14	11	11	22	28	22	15	10	8	5	4	3	3	2
22	42	30	27	49	79	63	44	28	22	15	13	12	14	10
23	8	6	9	22	17	12	8	6	5	3	2	0	0	0
24	2	1	-1	-5	2	2	2	0	0	0	0	1	2	1
25	1	0	-2	-8	0	1	1	0	0	0	0	1	3	1
26	4	2	0	-3	6	6	4	2	1	1	1	2	3	2
27	2	1	0	0	3	3	2	1	1	0	0	0	1	0
28	-6	-4	-5	-10	-12	-9	-6	-4	-3	-2	-1	-1	-1	0
29	5	4	5	12	10	8	5	3	3	2	1	0	0	0
30	-5	-4	-9	-21	-12	-8	-5	-4	-3	-2	-1	0	2	0
31	4	1	-3	-12	4	5	3	1	1	0	1	3	6	3
32	0	0	-1	-4	0	0	0	0	0	0	0	0	1	0
33	1	0	-1	-5	1	2	1	0	0	0	0	1	2	1
34	0	-1	-4	-11	-3	-1	-1	-1	-1	0	0	1	2	1
35	-2	-3	-10	-28	-9	-5	-3	-3	-2	-1	0	2	6	3
36	0	0	-2	-6	0	0	0	0	0	0	0	1	1	1
37	12	9	11	24	25	19	13	9	7	4	3	2	1	1
38	5	3	0	-5	7	7	5	2	2	1	2	3	5	3
39	2	0	-10	-31	-3	0	1	-1	0	0	1	5	9	5
40	10	4	-8	-29	9	11	8	2	2	2	4	8	14	7
41	1	0	-8	-24	-2	0	0	-1	0	0	1	4	7	3
42	7	2	-10	-33	4	7	6	0	1	1	3	8	13	7
43	-5	-6	-14	-37	-16	-10	-6	-6	-4	-2	0	2	6	3
44	3	0	-8	-24	0	2	2	0	0	0	1	4	8	4
45	-10	-7	-7	-15	-19	-15	-10	-6	-5	-3	-3	-2	-2	-1
46	-11	-8	-6	-10	-21	-17	-12	-7	-6	-4	-3	-3	-4	-3
47	-7	-8	-17	-43	-21	-13	-9	-8	-6	-3	-1	2	6	2
48	-2	-2	-8	-23	-8	-4	-2	-3	-2	-1	0	2	4	2
49	-7	-5	-6	-13	-14	-11	-7	-5	-4	-2	-2	-1	-1	-1
50	-12	-10	-15	-34	-28	-20	-14	-10	-8	-5	-3	-1	0	0
51	-6	-5	-7	-15	-13	-9	-6	-4	-3	-2	-1	0	0	0
52	-10	-9	-14	-34	-23	-16	-11	-8	-6	-4	-2	0	2	0
53	-3	-3	-6	-14	-9	-6	-4	-3	-2	-1	0	0	1	0

1966-1971 MALES

AGE GROUP

COUNTY	5	10	15	20	25	30	35	40	45	50	55	60	65	70
	9	14	19	24	29	34	39	44	49	54	59	64	69	74
1	1	0	-5	-15	0	1	1	0	0	0	1	2	5	2
2	-6	-4	-1	0	-10	-8	-6	-3	-2	-2	-2	-2	-3	-2
3	6	2	-6	-21	5	7	5	1	1	1	2	5	9	5
4	2	0	-3	-11	1	2	2	0	0	0	1	2	4	2
5	4	1	-2	-10	4	4	3	1	1	0	1	3	5	3
6	-1	-1	0	0	-3	-2	-1	-1	0	0	0	0	0	0
7	7	6	11	25	17	12	8	6	5	3	1	0	-2	0
8	3	0	-4	-15	1	3	2	0	0	0	1	3	6	3
9	-2	-3	-8	-21	-8	-4	-3	-3	-2	-1	0	1	4	2
10	15	8	-4	-22	19	19	14	6	5	4	5	10	15	9
11	0	0	-5	-14	-2	0	0	-1	0	0	0	2	3	1
12	7	4	-1	-10	10	10	7	3	2	2	2	4	7	4
13	32	18	-3	-29	45	43	31	15	13	9	11	18	28	16
14	5	2	-5	-18	5	6	4	1	1	1	2	5	8	4
15	15	9	3	1	24	21	15	8	7	5	5	6	9	5
16	13	6	-4	-21	16	16	12	5	4	3	5	8	13	8
17	8	4	-1	-10	11	10	7	3	3	2	3	5	8	4
18	1	-1	-12	-36	-5	0	0	-2	-1	0	1	5	10	5
19	22	12	-5	-29	30	29	21	9	8	6	8	14	22	12
20	24	15	6	3	39	34	24	13	11	8	8	10	14	9
21	9	6	4	6	17	14	9	5	4	3	3	3	4	2
22	42	30	29	54	79	62	44	28	23	15	13	11	12	9
23	2	3	8	21	8	4	3	3	2	1	0	-1	-3	-1
24	5	3	1	1	9	7	5	3	2	1	1	2	3	1
25	12	7	1	-3	19	17	12	6	5	4	4	6	8	5
26	3	1	0	-2	4	4	3	1	1	0	1	1	2	1
27	-1	0	1	4	-2	-2	-1	0	0	0	0	-1	-2	-1
28	6	4	3	6	12	9	6	4	3	2	2	2	2	1
29	8	6	5	10	16	12	9	5	4	3	2	2	2	1
30	7	4	0	-3	11	10	7	3	3	2	2	4	5	3
31	4	2	0	0	7	6	4	2	2	1	1	2	2	1
32	4	3	3	6	8	6	4	3	2	1	1	1	1	0
33	2	1	0	-3	3	3	2	1	0	0	0	1	2	1
34	1	0	0	0	1	1	1	0	0	0	0	0	0	0
35	-4	-4	-11	-30	-13	-8	-5	-5	-3	-2	0	2	5	2
36	2	2	2	4	5	4	3	2	1	1	0	0	0	0
37	9	7	8	18	18	14	9	6	5	3	2	1	0	1
38	12	9	8	15	23	19	13	8	6	4	4	3	4	3
39	17	10	0	-9	26	24	17	9	7	5	6	9	13	8
40	31	21	14	21	54	45	31	19	15	10	10	11	14	9
41	10	6	0	-4	15	13	9	5	4	3	3	5	7	4
42	27	17	5	-2	43	38	27	15	12	8	9	12	18	11
43	16	8	-4	-22	20	20	15	6	6	4	6	10	16	9
44	19	11	-1	-15	27	25	18	9	8	5	7	10	16	9
45	0	0	-1	-4	0	0	0	0	0	0	0	1	1	0
46	-12	-8	-6	-9	-22	-18	-13	-8	-6	-4	-4	-4	-5	-3
47	7	2	-7	-25	6	8	6	1	1	1	3	6	11	6
48	3	1	-1	-7	4	4	3	1	1	1	1	2	4	2
49	1	2	9	25	7	3	2	3	2	1	0	-2	-5	-2
50	-3	-3	-7	-18	-9	-6	-4	-3	-2	-1	0	0	2	1
51	-15	-10	-5	-5	-25	-21	-15	-8	-7	-5	-5	-6	-8	-5
52	-2	-2	-6	-16	-7	-4	-3	-2	-2	-1	0	1	2	1
53	-6	-5	-4	-8	-13	-10	-7	-4	-3	-2	-2	-1	-2	-1

1966-1971 FEMALES

AGE GROUP

	5	10	15	20	25	30	35	40	45	50	55	60	65	70
COUNTY	9	14	19	24	29	34	39	44	49	54	59	64	69	74
1	2	0	-8	-23	-1	1	1	-1	0	0	1	4	7	4
2	0	0	0	-1	0	0	0	0	0	0	0	0	0	0
3	5	1	-6	-20	3	5	4	0	1	0	2	5	8	4
4	3	1	-4	-15	2	4	3	0	0	0	1	3	6	3
5	3	1	-3	-10	3	4	3	1	1	0	1	3	5	2
6	-1	0	0	0	-2	-1	-1	0	0	0	0	0	0	0
7	8	6	7	15	17	12	9	6	4	3	2	1	1	1
8	3	0	-5	-16	1	3	2	0	0	0	1	3	6	3
9	-1	-2	-8	-22	-6	-3	-1	-2	-1	-1	0	2	5	2
10	6	2	-5	-18	6	8	5	2	1	1	2	5	9	5
11	1	0	-3	-10	0	0	0	0	0	0	0	1	3	1
12	7	3	-4	-17	8	9	7	2	2	1	3	5	9	5
13	29	17	-2	-24	42	39	28	14	12	8	10	16	25	14
14	4	1	-4	-15	3	4	3	0	1	0	1	4	6	3
15	10	6	0	-5	15	14	10	5	4	3	3	5	8	4
16	11	6	-2	-13	15	14	10	5	4	3	4	7	10	6
17	7	4	-2	-12	9	10	7	3	2	2	3	5	8	4
18	0	-1	-7	-20	-3	0	0	-1	-1	0	0	3	5	2
19	21	12	-3	-22	29	28	20	9	8	6	7	12	19	11
20	24	15	3	-5	38	33	24	13	11	7	8	11	16	10
21	10	6	4	5	17	14	10	6	4	3	3	3	5	3
22	44	31	23	38	80	65	45	28	23	15	14	15	18	12
23	2	2	6	17	8	4	3	3	2	1	0	-1	-2	-1
24	3	1	0	-3	4	4	3	1	1	0	1	1	3	1
25	8	4	-1	-10	10	10	7	3	3	2	3	5	7	4
26	3	2	-1	-5	5	5	3	1	1	1	1	2	3	2
27	-1	-1	0	2	-2	-2	-1	0	0	0	0	-1	-1	-1
28	3	2	1	3	6	5	3	2	1	1	1	1	1	1
29	8	5	5	10	15	11	8	5	4	2	2	2	2	1
30	5	3	0	-1	7	7	5	2	2	1	1	2	3	2
31	2	1	0	-1	3	3	2	1	1	0	0	1	2	1
32	3	2	1	1	6	5	3	2	1	1	1	1	1	1
33	2	1	-2	-8	2	3	2	0	0	0	1	2	4	2
34	1	0	-2	-7	0	1	1	0	0	0	0	1	2	1
35	-2	-3	-9	-25	-9	-4	-3	-3	-2	-1	0	2	5	2
36	2	1	0	-2	2	2	1	0	0	0	0	1	1	1
37	10	7	7	15	20	16	11	7	5	4	3	2	2	2
38	14	9	6	8	24	20	14	8	7	4	4	5	6	4
39	16	9	-2	-18	22	21	15	7	6	4	6	10	15	8
40	28	19	15	26	51	41	29	18	14	10	9	9	11	7
41	9	5	0	-3	13	12	8	4	4	2	3	4	6	4
42	24	15	5	1	39	34	24	13	11	7	8	10	15	9
43	13	7	-2	-15	18	18	13	6	5	3	5	8	12	7
44	20	11	0	-11	29	27	19	10	8	6	7	10	15	9
45	1	0	-4	-14	0	0	0	0	0	0	0	2	4	2
46	-12	-8	-4	-3	-21	-18	-13	-7	-6	-4	-4	-5	-7	-4
47	5	1	-7	-22	3	5	4	0	0	0	2	5	9	5
48	2	1	-2	-8	2	3	2	0	0	0	1	2	3	2
49	0	0	4	12	2	0	0	1	0	0	0	-1	-3	-1
50	-5	-4	-6	-15	-12	-8	-6	-4	-3	-2	-1	0	0	0
51	-16	-9	-1	4	-24	-22	-15	-8	-7	-5	-5	-7	-11	-6
52	-5	-5	-10	-24	-14	-9	-6	-5	-4	-2	-1	0	2	1
53	-4	-3	-2	-4	-8	-6	-4	-2	-2	-1	-1	-1	-1	-1

APPENDIX 5: MAIN EFFECTS AND SELECTED INTERACTIONS FROM THE ANALYSES OF VARIANCE

(Note: The values are printed x 1000)

	Factor 1	Factor 2
Overall mean:	18	-33
Sex main effect:		
Male	1	0
Female	-1	0
Time period main effect:		
1956-1961	2	8
1961-1966	-19	-9
1966-1971	17	2

	Factor 1						Factor 2					
County	County Main Effect	County by Sex Interaction		County by Time-Period Interaction			County Main Effect	County by Sex Interaction		County by Time-Period Interaction		
1	-31	0	0	-18	15	2	-28	12	-12	14	-13	0
2	-11	-7	7	18	20	-38	50	11	-11	-1	16	-14
3	-23	3	-3	4	-17	12	-55	-6	6	1	-15	14
4	-6	1	-1	28	-13	-14	-11	-1	1	1	1	-2
5	-6	0	0	-1	12	-10	-14	-3	3	2	-8	6
6	-10	-1	1	17	14	-32	19	3	-3	-9	-4	13
7	39	-1	1	25	2	-27	67	7	-7	1	-7	5
8	-31	3	-3	-14	4	10	-33	-6	6	-6	-4	10
9	-31	-2	2	28	-11	-17	-18	3	-3	26	-15	-10
10	5	15	-15	63	-75	12	-39	-15	15	9	2	-11
11	-41	-6	6	-26	19	7	-12	-2	2	-10	4	6
12	11	4	-4	-5	15	-9	1	4	-4	-1	29	-27
13	27	-4	4	7	-100	92	-101	-7	7	90	-77	-13
14	-19	-1	1	5	-11	6	-11	0	0	21	-2	-18
15	14	6	-6	-5	-10	16	-10	4	-4	-7	0	6
16	23	5	-5	-7	6	0	-31	-12	12	8	6	-14
17	11	0	0	3	3	-6	-13	-1	1	2	4	-6
18	-40	0	0	-20	16	4	-33	-9	9	0	18	-18
19	36	4	-4	-25	-11	36	-59	-16	16	10	23	-34
20	120	1	-1	52	-23	-29	24	6	-6	11	39	-51
21	58	0	0	14	26	-40	36	-3	3	-23	33	-10
22	178	-2	2	-79	57	21	73	12	-12	-24	28	-4
23	23	-2	2	18	21	-40	83	0	0	-4	7	-2
24	-5	1	-1	-10	17	-6	15	0	0	-8	5	2
25	7	7	-7	-10	1	9	-5	-6	6	-1	7	-6
26	2	-1	1	-5	24	-19	12	0	0	-11	-12	0
27	-8	0	0	14	20	-35	44	-1	1	-1	0	1
28	-18	0	0	7	-19	12	20	0	0	-8	-4	13
29	20	0	0	2	7	-9	51	-2	2	-1	10	-8
30	-11	4	-4	8	-18	9	6	0	0	12	-14	1

	Factor 1						Factor 2					
County	County Main Effect	County by Sex Interaction		County by Time-Period Interaction			County Main Effect	County by Sex Interaction		County by Time-Period Interaction		
31	-3	0	0	-8	21	-13	11	2	-2	-1	-7	9
32	-18	-1	1	-28	22	5	18	2	-2	-35	19	15
33	-18	0	0	-22	25	-3	7	-1	1	-12	11	0
34	-12	1	-1	8	7	-16	17	2	-2	4	-6	1
35	-31	1	-1	7	18	-26	-24	6	-6	6	10	-17
36	-15	0	0	-9	15	-6	20	5	-5	-15	6	8
37	42	0	0	-9	30	-21	69	0	0	-8	19	-11
38	27	0	0	-16	5	10	20	7	-7	-10	-5	15
39	11	3	-3	-28	-10	38	-50	2	-2	-2	-1	4
40	48	0	0	-64	-11	76	-18	6	-6	-20	-31	51
41	-5	0	0	-26	6	19	-22	0	0	-14	-6	20
42	46	0	0	-39	-13	52	-59	-1	1	-13	-17	31
43	-2	2	-2	-4	-35	40	-54	-9	9	15	-12	-2
44	27	-4	4	-19	-16	35	-35	2	-2	13	1	-15
45	0	-17	17	91	-59	-31	37	6	-6	57	-20	-36
46	-67	0	0	24	10	-34	29	-6	6	-16	4	11
47	-30	4	-4	-5	-16	22	-73	-2	2	-33	12	21
48	-8	0	0	22	-11	-11	-8	-6	6	-2	-6	9
49	-30	-1	1	10	-14	4	50	10	-10	-20	-12	33
50	-72	0	0	-2	-9	11	-19	-4	4	-5	-7	12
51	-74	-9	9	6	33	-40	51	5	-5	7	-21	13
52	-59	1	-1	1	0	0	-22	0	0	6	-10	3
53	-36	-9	9	19	9	-29	29	2	-2	11	-7	-4

APPENDIX 6: ESTIMATES OF THE MIGRATION RATE BY COUNTY, SEX, AGE GROUP AND TIME PERIOD, SMOOTHED BY THE FACTORIZATION AND BY THE ELIMINATION OF CERTAIN INTERACTIONS

NOTE: Each of the following pages contains the rates for one combination of Sex and Time Period. The rows on a page correspond to Counties (defined as counties, districts, or regional areas) and the columns to Age Groups (with intervals as indicated by the column headings). The figures are percentage excess of actual populations over the expected (based on the population in the previous time point and the earlier age group) relative to the earlier population.

1956-1961 MALES

	AGE GROUP													
	5	10	15	20	25	30	35	40	45	50	55	60	65	70
COUNTY	9	14	19	24	29	34	39	44	49	54	59	64	69	74
1	-4	-4	-5	-13	-10	-7	-5	-3	-3	-2	-1	0	0	0
2	3	3	6	14	8	5	3	3	2	1	0	0	-1	0
3	2	0	-9	-27	-2	1	1	-1	0	0	1	4	8	4
4	9	5	0	-5	13	12	9	4	3	2	3	4	7	4
5	3	1	-3	-11	3	3	2	0	0	0	1	3	5	2
6	5	3	1	0	8	7	5	3	2	1	1	2	3	2
7	15	11	14	29	30	23	16	11	8	5	4	2	1	1
8	-2	-3	-10	-26	-10	-5	-3	-3	-2	-1	0	2	5	2
9	3	1	0	-1	4	4	3	1	1	1	1	1	2	1
10	20	12	1	-8	31	28	20	10	9	6	7	10	15	9
11	-8	-7	-10	-24	-19	-14	-9	-7	-5	-3	-2	0	0	0
12	6	3	0	-2	9	8	6	3	2	2	2	3	4	2
13	10	6	0	-6	15	14	10	5	4	3	3	5	8	5
14	1	0	-1	-3	1	1	1	0	0	0	0	1	1	1
15	7	4	0	-7	10	10	7	3	3	2	2	4	6	3
16	9	4	-3	-14	11	11	8	3	3	2	3	6	9	5
17	7	4	0	-7	10	9	7	3	2	2	2	4	6	3
18	-6	-6	-11	-28	-16	-11	-7	-6	-4	-3	-1	1	3	1
19	8	3	-7	-24	8	9	7	2	2	1	3	7	11	6
20	36	25	21	34	66	53	37	23	19	13	11	11	14	9
21	17	12	7	8	30	25	18	10	8	6	5	6	9	5
22	21	16	15	29	41	32	22	14	12	8	6	5	5	4
23	10	8	12	26	23	17	11	8	6	4	3	1	0	0
24	1	0	-1	-4	1	1	1	0	0	0	0	1	2	1
25	5	2	-1	-8	6	7	5	2	2	1	2	3	5	3
26	3	1	-1	-5	4	4	3	1	1	1	1	2	3	2
27	5	4	4	9	10	7	5	3	3	2	1	1	0	0
28	2	1	0	-2	3	3	2	1	0	0	0	1	2	1
29	7	6	6	14	15	11	8	5	4	3	2	1	1	1
30	4	3	1	1	7	6	4	2	2	1	1	1	2	1
31	2	1	0	-2	2	2	2	0	0	0	0	1	2	1
32	-4	-3	-7	-17	-10	-7	-4	-3	-3	-1	0	0	1	0
33	-3	-3	-5	-13	-8	-5	-3	-3	-2	-1	0	0	1	0
34	3	2	1	2	6	5	3	2	1	1	1	1	1	1
35	0	0	-4	-11	-1	0	0	0	0	0	0	1	3	1
36	0	0	-1	-5	-1	0	0	0	0	0	0	0	1	0
37	9	7	9	19	19	14	10	7	5	3	2	1	0	1
38	6	4	2	2	10	9	6	3	3	2	2	2	3	2
39	2	0	-8	-23	0	2	1	0	0	0	1	4	8	4
40	1	0	-6	-18	0	1	1	0	0	0	1	3	6	3
41	0	-2	-8	-21	-5	-2	-1	-2	-1	0	0	2	5	2
42	6	2	-9	-29	4	7	5	1	1	1	3	7	11	6
43	4	1	-7	-22	2	4	3	0	0	0	2	5	8	4
44	5	2	-2	-11	6	6	5	2	1	1	2	4	6	3
45	16	13	18	39	35	26	18	13	10	6	4	2	0	1
46	-3	-2	-4	-8	-7	-5	-3	-2	-2	-1	0	0	0	0
47	0	-3	-16	-45	-9	-2	-1	-3	-2	-1	1	6	12	6
48	7	4	-1	-8	10	9	7	3	2	2	2	4	7	4
49	0	0	1	5	0	0	0	0	0	0	0	0	-1	0
50	-9	-7	-11	-26	-20	-14	-10	-7	-5	-3	-2	0	1	0
51	-10	-6	0	5	-16	-14	-10	-5	-4	-3	-3	-5	-8	-5
52	-5	-5	-7	-18	-13	-9	-6	-4	-3	-2	-1	0	1	0
53	-1	0	1	5	0	-1	0	0	0	0	0	-1	-2	-1

1956-1961 FEMALES

A G E   G R O U P

COUNTY	5	10	15	20	25	30	35	40	45	50	55	60	65	70
	9	14	19	24	29	34	39	44	49	54	59	64	69	74
1	-5	-4	-9	-22	-12	-8	-5	-4	-3	-2	-1	0	2	1
2	6	4	4	8	11	9	6	4	3	2	1	1	1	1
3	0	-1	-8	-25	-4	0	0	-1	-1	0	0	3	6	3
4	7	4	0	-6	11	10	7	3	3	2	2	4	6	3
5	2	0	-3	-10	1	2	2	0	0	0	1	2	4	2
6	5	3	0	-2	8	7	5	2	2	1	1	2	4	2
7	15	11	12	24	30	23	16	10	8	5	4	3	3	2
8	-4	-4	-9	-24	-12	-8	-5	-4	-3	-2	0	1	3	1
9	3	2	0	-4	5	5	3	1	1	1	1	2	3	2
10	14	8	2	-3	22	19	13	7	6	4	4	6	9	5
11	-7	-6	-9	-21	-16	-11	-8	-5	-4	-3	-1	0	1	0
12	4	2	-1	-7	5	5	3	1	1	1	1	2	4	2
13	11	7	1	-1	17	15	11	6	5	3	3	5	7	4
14	1	0	-1	-4	1	1	1	0	0	0	0	1	2	1
15	4	2	-3	-12	4	5	4	1	1	1	1	3	6	3
16	6	3	-1	-7	8	8	5	2	2	1	2	3	6	3
17	6	3	0	-6	9	9	6	3	2	2	2	4	6	3
18	-7	-6	-9	-22	-16	-11	-7	-6	-4	-3	-1	0	1	0
19	5	2	-4	-15	5	6	5	1	1	1	2	4	7	4
20	35	24	18	28	63	51	36	22	18	12	11	12	15	10
21	17	11	7	10	30	24	17	10	8	5	5	6	8	5
22	22	15	12	21	40	32	23	14	11	8	7	7	8	5
23	11	9	12	26	23	17	12	8	6	4	3	1	0	0
24	0	0	-2	-6	0	0	0	0	0	0	0	1	2	1
25	2	0	-2	-7	1	2	1	0	0	0	0	2	3	1
26	3	1	-1	-6	4	4	3	1	1	0	1	2	3	2
27	4	3	4	9	9	6	4	3	2	1	1	0	0	0
28	1	0	0	-3	1	1	1	0	0	0	0	1	1	1
29	7	5	7	15	15	11	7	5	4	2	2	1	0	0
30	2	1	0	0	3	3	2	1	1	0	0	1	1	0
31	1	0	-1	-5	1	1	1	0	0	0	0	1	2	1
32	-4	-4	-7	-18	-10	-7	-4	-4	-3	-2	0	0	2	0
33	-3	-3	-5	-12	-8	-5	-4	-3	-2	-1	0	0	1	0
34	2	1	0	0	4	3	2	1	1	0	0	1	1	1
35	0	-1	-6	-17	-4	-1	-1	-1	-1	0	0	2	4	2
36	0	-1	-3	-9	-3	-1	-1	-1	0	0	0	0	1	0
37	9	7	9	19	19	14	9	6	5	3	2	1	0	1
38	5	3	0	-3	8	7	5	2	2	1	2	3	4	2
39	1	-1	-9	-27	-4	0	0	-1	-1	0	1	4	7	4
40	1	0	-8	-23	-2	0	0	-1	0	0	1	3	7	3
41	-1	-2	-8	-22	-7	-3	-2	-2	-2	-1	0	2	5	2
42	6	2	-8	-28	4	7	5	0	1	1	3	6	11	6
43	2	0	-5	-17	0	2	1	0	0	0	1	3	6	3
44	6	3	-2	-12	8	8	6	2	2	1	2	4	7	4
45	23	17	19	39	45	35	24	16	13	8	6	5	4	3
46	-4	-3	-3	-5	-8	-6	-4	-3	-2	-1	-1	-1	-1	-1
47	-1	-4	-17	-46	-13	-6	-3	-5	-3	-2	0	5	11	5
48	6	3	0	-5	9	8	6	3	2	1	2	3	5	3
49	0	0	0	-2	0	0	0	0	0	0	0	0	0	0
50	-9	-7	-10	-23	-20	-15	-10	-7	-6	-3	-2	-1	0	0
51	-7	-4	0	3	-11	-10	-7	-4	-3	-2	-2	-4	-5	-3
52	-7	-5	-8	-19	-15	-11	-7	-5	-4	-2	-1	0	0	0
53	2	1	2	6	4	3	2	1	1	0	0	0	0	0

1961-1966 MALES

AGE GROUP

COUNTY	5	10	15	20	25	30	35	40	45	50	55	60	65	70
	9	14	19	24	29	34	39	44	49	54	59	64	69	74
1	-1	-3	-9	-26	-8	-4	-2	-3	-2	-1	0	2	5	2
2	0	0	4	12	2	0	0	1	0	0	0	-1	-3	-1
3	-5	-6	-17	-45	-18	-10	-6	-7	-5	-3	0	3	8	4
4	-2	-3	-7	-20	-8	-4	-3	-3	-2	-1	0	1	3	1
5	2	0	-7	-21	0	1	1	0	0	0	1	4	7	3
6	0	0	-2	-7	0	0	0	0	0	0	0	1	2	1
7	7	5	6	14	14	10	7	5	4	2	2	1	0	0
8	-3	-4	-12	-32	-12	-6	-4	-4	-3	-2	0	3	6	3
9	-7	-7	-12	-30	-18	-12	-8	-6	-5	-3	-1	0	3	1
10	-8	-8	-16	-39	-22	-15	-10	-8	-6	-4	-1	1	4	1
11	-4	-4	-8	-21	-11	-7	-5	-4	-3	-2	0	0	2	1
12	6	4	2	2	10	8	6	3	2	2	2	2	3	2
13	-10	-13	-34	-87	-36	-21	-14	-14	-10	-6	-1	7	16	7
14	-5	-5	-9	-23	-13	-9	-6	-5	-3	-2	-1	0	2	1
15	2	0	-4	-14	1	2	2	0	0	0	1	3	5	2
16	7	3	-5	-21	7	9	7	2	2	1	3	6	10	5
17	3	1	-4	-15	2	3	2	0	0	0	1	3	6	3
18	-3	-4	-10	-26	-11	-6	-4	-4	-3	-2	0	1	4	2
19	7	2	-8	-26	5	7	6	1	1	1	3	6	11	6
20	18	13	12	24	34	26	18	12	9	6	5	4	5	3
21	15	11	11	20	29	23	16	10	8	5	4	4	4	3
22	42	31	30	58	81	63	44	29	23	15	13	11	11	8
23	7	6	9	22	16	11	8	6	4	3	1	0	-1	0
24	3	1	0	-4	3	3	2	1	1	0	1	2	3	1
25	3	1	-3	-12	3	4	3	0	0	0	1	3	5	3
26	5	3	0	-1	7	6	4	2	2	1	1	2	3	2
27	2	1	1	2	4	3	2	1	1	0	0	0	0	0
28	-6	-5	-6	-13	-13	-10	-7	-4	-3	-2	-1	-1	0	0
29	4	3	4	9	9	7	5	3	2	1	1	0	0	0
30	-3	-3	-8	-20	-10	-6	-4	-4	-3	-1	0	0	2	1
31	4	1	-2	-9	4	4	3	1	1	0	1	3	4	2
32	0	0	0	0	1	0	0	0	0	0	0	0	0	0
33	1	0	-2	-7	0	1	1	0	0	0	0	1	2	1
34	0	0	-3	-9	-2	0	0	0	0	0	0	1	2	1
35	-1	-2	-6	-17	-6	-3	-1	-2	-1	-1	0	1	3	1
36	0	0	0	-2	0	0	0	0	0	0	0	0	0	0
37	12	10	12	26	26	19	13	9	7	5	3	2	1	1
38	6	4	1	-1	10	9	6	3	2	2	2	3	4	2
39	2	0	-10	-29	-2	1	1	-1	0	0	1	5	9	4
40	8	3	-6	-23	8	9	7	2	2	1	3	6	11	6
41	1	0	-8	-23	-2	0	0	-1	0	0	1	3	6	3
42	7	2	-11	-35	5	8	6	1	1	1	3	8	14	7
43	-4	-6	-17	-44	-17	-9	-6	-6	-5	-3	0	4	8	4
44	2	0	-8	-23	-1	1	1	0	0	0	1	4	7	4
45	-14	-10	-9	-16	-26	-20	-14	-9	-7	-5	-4	-4	-4	-3
46	-10	-7	-6	-12	-19	-15	-10	-6	-5	-3	-3	-2	-3	-2
47	-6	-6	-16	-41	-19	-11	-7	-7	-5	-3	-1	2	6	3
48	-2	-3	-9	-23	-9	-5	-3	-3	-2	-1	0	2	4	2
49	-8	-6	-3	-4	-15	-12	-9	-5	-4	-3	-2	-3	-4	-2
50	-14	-11	-16	-36	-30	-22	-15	-11	-8	-5	-3	-1	0	0
51	-9	-6	-5	-9	-17	-13	-9	-6	-4	-3	-2	-2	-3	-2
52	-9	-8	-14	-33	-23	-16	-11	-8	-6	-4	-2	0	2	0
53	-6	-4	-5	-11	-12	-9	-6	-4	-3	-2	-1	-1	-1	-1

1961-1966 FEMALES

	AGE GROUP													
	5 9	10 14	15 19	20 24	25 29	30 34	35 39	40 44	45 49	50 54	55 59	60 64	65 69	70 74
COUNTY														
1	-1	-3	-13	-35	-10	-5	-3	-4	-3	-1	0	3	8	4
2	2	2	2	6	5	3	2	1	1	1	0	0	0	0
3	-7	-7	-17	-42	-20	-12	-8	-7	-5	-3	-1	2	6	3
4	-3	-3	-8	-21	-10	-6	-4	-4	-3	-1	0	1	3	1
5	1	0	-7	-20	-2	0	0	-1	0	0	1	3	6	3
6	0	0	-3	-10	0	0	0	0	0	0	0	1	3	1
7	7	5	5	9	13	11	7	4	4	2	2	2	2	1
8	-5	-5	-11	-29	-14	-9	-6	-5	-4	-2	0	1	4	1
9	-6	-6	-13	-33	-18	-11	-8	-6	-5	-3	-1	1	4	1
10	-15	-12	-16	-34	-32	-24	-16	-11	-9	-6	-4	-2	0	-1
11	-2	-3	-7	-18	-8	-5	-3	-3	-2	-1	0	1	3	1
12	3	2	0	-2	5	5	3	1	1	1	1	2	3	1
13	-10	-12	-32	-82	-34	-19	-13	-13	-9	-6	-1	6	15	7
14	-5	-4	-9	-23	-13	-8	-5	-4	-3	-2	-1	0	2	1
15	0	-1	-7	-19	-4	-1	0	-1	-1	0	0	2	5	2
16	5	2	-4	-15	4	5	4	1	1	1	2	4	7	4
17	3	0	-4	-15	1	3	2	0	0	0	1	3	5	3
18	-4	-4	-8	-20	-11	-7	-5	-4	-3	-2	0	0	2	1
19	4	1	-5	-18	3	4	3	0	0	0	1	4	7	4
20	17	12	10	18	31	25	17	11	9	6	5	5	6	4
21	14	11	11	22	28	22	15	10	8	5	4	3	3	2
22	43	31	27	49	80	64	45	28	23	15	13	12	14	10
23	7	6	9	22	17	12	8	6	4	3	2	0	-1	0
24	1	0	-1	-6	1	2	1	0	0	0	0	1	2	1
25	0	0	-4	-11	-1	0	0	0	0	0	0	1	3	1
26	4	2	0	-2	7	6	4	2	2	1	1	2	3	2
27	1	1	1	2	3	2	1	1	0	0	0	0	0	0
28	-7	-5	-7	-15	-14	-11	-7	-5	-4	-2	-2	-1	0	0
29	4	3	4	10	9	6	4	3	2	1	1	0	0	0
30	-6	-5	-9	-22	-14	-10	-7	-5	-4	-2	-1	0	1	0
31	3	1	-3	-11	3	4	3	0	0	0	1	3	5	2
32	0	0	0	-1	0	0	0	0	0	0	0	0	0	0
33	1	0	-2	-6	0	1	0	0	0	0	0	1	2	1
34	-1	-1	-4	-12	-4	-2	-1	-1	-1	0	0	1	2	1
35	-2	-3	-9	-23	-9	-5	-3	-3	-2	-1	0	2	4	2
36	0	0	-2	-7	-1	0	0	0	0	0	0	0	1	0
37	12	9	12	25	25	19	13	9	7	4	3	2	1	1
38	6	3	-1	-7	8	8	5	2	2	1	2	3	5	3
39	0	-2	-11	-33	-6	-1	0	-2	-1	0	1	4	9	4
40	7	2	-8	-28	6	8	6	1	1	1	3	7	12	6
41	0	-1	-8	-24	-4	0	0	-1	-1	0	0	3	6	3
42	7	2	-10	-34	4	8	6	1	1	1	3	8	14	7
43	-6	-6	-15	-39	-19	-11	-7	-7	-5	-3	-1	2	6	2
44	3	0	-8	-24	0	3	2	0	0	0	1	5	8	4
45	-7	-6	-8	-17	-16	-12	-8	-5	-4	-3	-2	-1	0	0
46	-11	-7	-6	-9	-20	-16	-11	-7	-5	-4	-3	-3	-4	-3
47	-8	-8	-17	-42	-23	-15	-10	-8	-6	-4	-1	1	5	2
48	-3	-3	-8	-20	-10	-6	-4	-3	-2	-1	0	1	3	1
49	-8	-6	-6	-12	-16	-12	-8	-5	-4	-3	-2	-2	-2	-1
50	-14	-11	-15	-33	-31	-23	-16	-11	-9	-5	-4	-2	0	-1
51	-6	-4	-5	-11	-12	-9	-6	-4	-3	-2	-1	-1	0	0
52	-11	-9	-15	-34	-25	-17	-12	-9	-7	-4	-2	0	2	0
53	-3	-2	-4	-10	-7	-5	-3	-2	-2	-1	0	0	0	0

1966-1971 MALES

AGE GROUP

COUNTY	5	10	15	20	25	30	35	40	45	50	55	60	65	70
	9	14	19	24	29	34	39	44	49	54	59	64	69	74
1	2	0	-4	-15	0	1	1	0	0	0	1	3	5	2
2	-4	-2	0	2	-6	-5	-4	-2	-1	-1	-1	-2	-3	-2
3	6	2	-6	-22	5	7	5	1	1	1	2	6	9	5
4	3	1	-3	-13	3	4	3	0	0	0	1	3	5	3
5	4	1	-3	-11	4	5	3	1	1	1	1	3	5	3
6	-1	0	0	0	-2	-2	-1	0	0	0	0	0	-1	0
7	7	6	10	23	17	12	8	6	5	3	2	0	-1	0
8	4	1	-5	-17	3	4	3	0	0	0	1	4	7	4
9	-2	-2	-8	-20	-7	-4	-2	-3	-2	-1	0	1	4	2
10	14	7	-5	-22	18	18	13	5	5	3	5	9	15	8
11	0	-1	-5	-13	-3	-1	0	-1	0	0	0	1	3	1
12	8	4	-2	-11	11	11	8	3	3	2	3	5	8	5
13	30	17	-3	-29	42	40	29	14	12	9	11	18	27	16
14	4	1	-5	-17	4	5	4	1	1	1	2	4	7	4
15	14	9	3	0	23	20	14	8	6	4	4	6	8	5
16	13	7	-4	-20	17	17	12	5	5	3	5	9	14	8
17	8	4	-2	-11	10	10	7	3	3	2	3	5	8	4
18	1	-1	-10	-31	-4	0	0	-2	-1	0	1	4	9	4
19	23	12	-5	-30	31	30	22	10	9	6	8	14	22	13
20	25	16	6	1	40	34	24	13	11	8	8	11	15	9
21	10	6	4	4	17	14	10	6	5	3	3	3	5	3
22	43	31	28	50	80	63	44	28	23	15	13	12	13	9
23	2	2	7	19	8	4	3	3	2	1	0	-1	-3	-1
24	4	3	0	0	7	6	4	2	2	1	1	2	3	1
25	12	7	0	-7	17	16	11	5	5	3	4	6	9	5
26	3	2	0	-3	5	4	3	1	1	1	1	2	3	1
27	-1	0	0	3	-1	-1	-1	0	0	0	0	-1	-1	-1
28	5	3	3	5	10	8	5	3	2	2	1	1	2	1
29	8	6	5	9	15	12	8	5	4	3	2	2	2	2
30	7	4	1	-1	11	10	7	4	3	2	2	3	5	3
31	3	2	0	0	5	5	3	2	1	1	1	1	2	1
32	4	3	2	5	7	6	4	2	2	1	1	1	1	0
33	2	1	-1	-6	3	3	2	1	0	0	1	2	3	1
34	1	0	0	-1	2	2	1	0	0	0	0	1	1	0
35	-2	-3	-9	-24	-9	-5	-3	-3	-2	-1	0	2	4	2
36	2	1	1	3	5	4	2	1	1	0	0	0	0	0
37	10	7	8	17	20	15	10	7	5	3	3	2	1	1
38	13	9	8	14	25	20	14	8	7	4	4	4	4	3
39	18	10	0	-12	26	24	17	8	7	5	6	9	14	8
40	29	20	16	26	53	43	30	18	15	10	9	9	12	8
41	10	6	1	-3	15	13	9	5	4	3	3	5	7	4
42	26	16	5	0	41	36	25	14	12	8	8	11	16	10
43	15	8	-4	-21	20	20	14	6	5	4	5	10	15	9
44	19	11	0	-13	27	25	18	9	8	5	6	10	15	9
45	-1	-1	-3	-9	-5	-3	-2	-1	-1	0	0	0	1	0
46	-12	-8	-5	-8	-21	-17	-12	-7	-6	-4	-4	-4	-5	-3
47	7	3	-6	-23	6	8	6	1	1	1	3	6	10	6
48	3	1	-2	-9	3	4	3	1	1	0	1	3	4	2
49	0	1	8	22	5	2	1	2	1	0	0	-2	-5	-2
50	-4	-3	-7	-17	-10	-7	-4	-3	-3	-1	0	0	2	0
51	-17	-10	-3	0	-27	-23	-17	-9	-7	-5	-5	-7	-11	-6
52	-3	-3	-8	-19	-10	-6	-4	-3	-2	-1	0	1	2	1
53	-7	-5	-4	-6	-13	-10	-7	-4	-3	-2	-2	-2	-2	-1

1966-1971 FEMALES

COUNTY	5 9	10 14	15 19	20 24	25 29	30 34	35 39	40 44	45 49	50 54	55 59	60 64	65 69	70 74
	AGE GROUP													
1	1	0	-8	-23	-2	0	0	-1	0	0	1	4	7	4
2	-1	-1	-1	-3	-3	-2	-1	-1	-1	0	0	0	0	0
3	4	1	-6	-19	3	5	3	0	0	0	2	4	8	4
4	2	0	-4	-13	1	2	2	0	0	0	1	3	5	2
5	3	1	-2	-10	3	4	3	0	0	0	1	2	4	2
6	-1	-1	-1	-2	-2	-2	-1	-1	0	0	0	0	0	0
7	8	6	8	17	16	12	8	6	4	3	2	1	0	0
8	2	0	-4	-14	0	2	1	0	0	0	1	3	5	2
9	-1	-2	-8	-23	-7	-3	-2	-2	-2	-1	0	2	5	2
10	7	3	-4	-17	8	9	6	2	2	1	3	5	9	5
11	1	0	-3	-11	0	1	1	0	0	0	0	2	3	2
12	6	3	-4	-16	7	8	6	2	2	1	2	5	8	4
13	31	18	-1	-24	45	42	30	15	13	9	11	17	26	15
14	5	2	-5	-17	4	5	4	1	1	1	2	4	7	4
15	11	7	0	-4	17	15	11	5	5	3	4	5	8	5
16	10	5	-2	-14	14	14	10	4	4	3	4	6	10	6
17	7	4	-2	-11	10	10	7	3	2	2	3	5	7	4
18	0	-1	-8	-25	-4	0	0	-1	-1	0	0	3	7	3
19	20	11	-3	-21	28	27	19	9	8	6	7	12	18	11
20	23	14	3	-4	37	33	23	12	10	7	8	11	16	9
21	9	6	4	6	16	13	9	5	4	3	3	3	4	2
22	43	31	25	42	79	64	45	28	23	15	13	14	16	11
23	2	3	7	19	8	5	3	3	2	1	0	-1	-3	-1
24	3	2	0	-1	5	5	3	1	1	1	1	1	2	1
25	8	5	0	-6	12	11	8	4	3	2	3	4	7	4
26	3	1	0	-4	4	4	3	1	1	1	1	2	3	2
27	-2	-1	0	3	-3	-3	-2	0	0	0	0	-1	-2	-1
28	4	3	2	4	8	7	5	3	2	1	1	1	1	1
29	8	5	5	10	15	12	8	5	4	3	2	2	2	1
30	5	3	0	-3	7	7	5	2	2	1	1	2	4	2
31	3	1	0	-2	4	4	3	1	1	0	1	1	2	1
32	4	2	2	3	7	5	4	2	2	1	1	1	1	1
33	2	1	-1	-5	2	3	2	0	0	0	1	1	3	1
34	0	0	-1	-4	0	0	0	0	0	0	0	0	1	0
35	-3	-4	-12	-30	-12	-7	-4	-4	-3	-2	0	2	5	2
36	2	1	0	0	3	3	2	1	0	0	0	1	1	1
37	9	7	8	16	19	14	10	6	5	3	2	2	1	1
38	13	9	6	8	23	19	13	8	6	4	4	4	6	3
39	16	9	-1	-15	22	21	15	7	6	4	6	9	14	8
40	29	20	14	21	52	42	30	18	15	10	9	10	13	8
41	9	5	0	-4	13	12	9	[illegible]	4	2	3	4	7	4
42	25	16	5	0	41	36	25	15	12	8	8	11	16	10
43	14	7	-2	-16	19	18	13	6	5	4	5	8	13	7
44	20	11	0	-13	29	27	19	9	8	6	7	11	16	9
45	4	1	-2	-9	4	5	3	1	1	1	1	3	5	2
46	-13	-8	-4	-4	-22	-19	-13	-7	-6	-4	-4	-5	-7	-4
47	5	1	-7	-24	2	5	4	0	0	0	2	5	9	5
48	2	1	-1	-6	3	3	2	0	0	0	1	2	3	1
49	0	1	5	15	4	2	1	1	1	0	0	-1	-3	-1
50	-4	-4	-6	-15	-11	-7	-5	-4	-3	-2	-1	0	1	0
51	-14	-9	-3	-1	-22	-19	-14	-7	-6	-4	-4	-6	-8	-5
52	-4	-4	-8	-21	-12	-8	-5	-4	-3	-2	-1	0	2	1
53	-4	-3	-3	-6	-8	-6	-4	-2	-2	-1	-1	-1	0	0

D.
Notations and Methodology

The notations used in computing the projection were:

p_{ijk} - population for the age i, sex j, year k, either actual population by single year of (as reported by the 1971 Census) or the previous year's projection

m_{ij} - migration rate (just described in C)

s_{ijk} - survival rate (just described in B)

f_{ik} - fertility rate (just described in A)

x_j - proportion male or female

Δf_i - annual change in fertility rate, expressed as f_{ijk+1}/f_{ijk} (Typical values are .90 to .99.)

Δs_{ij} - annual change in survival rate, expressed as:

$$\Delta s_i = \frac{s_{i+1} - s_i}{1 - s_i} = \frac{d_i - d_{i+1}}{d_i}$$

where $d_i = 1 - s_i$ is the death ratio (Typical values of Δs_{ij} are 0 to .05.)

The actual projection is then very simply expressed. First, compute values for s_{ijk} and f_{ijk}:

$s_{ijk} = s_{ijk-1} + \Delta s_{ij} - s_{ijk-1} \cdot \Delta s_{ij}$ and $f_{ik} = f_{ik-1} \cdot \Delta f_i$.

Then, for ages 1 through 89, compute the new population estimates:

$p_{ijk} = (s_{ijk} + m_{ij}) \cdot p_{ijk-1}$

The total number of births is then computed:

$$B = \sum_{i=15}^{49} f_{ik} \cdot p_{ijk}$$

and the under 1 population estimates are computed:

$$p_{ijk} = x_j \,.\, B \,.\, s_{ijk} \,.\, (1 + m_{ij})$$

The methodology which was used for the input on fertility, survival, and migration rates can be summarized as follows:

Fertility:

1971 age-specific rates for five-year age groups were computed from 1971 female population and 1971 births by age of mother, using five-year age groupings. The Gompertz curve was then used to derive smoothed estimates by single years of age.[1]

Estimated age-specific birth rates by five-year age groups were computed for 1986 on the basis of expected changes in direction and level of age-specific fertility. Estimates by single years of age were then derived by using the Gompertz curve (as for the 1971 data, cumulative births to ages 20, 30, and 40 were used to plot the curve).

The estimated fertility rates for the years 1972 to 1985 were computed with the following formula:

If the 1971 rate for age i is f_{i1} and the 1986 rate is f_{i16}, then the estimated rate for year j is:

$$f_{ij} = f_{i1}^{\frac{16-i}{15}} \,.\, f_{i16}^{\frac{i-1}{15}}$$

The result is a smooth, exponential curve through the geometric mean.

The sex ratio was computed from the total live births from 1966 to 1971, in order to obtain a more stable estimate than could be obtained from 1971 data alone.

Survival:

The stationary population was estimated from 1971 census data and records of deaths, using Sprague multipliers to obtain the stationary population by single year of age. In order to obtain stable estimates, economic regions rather than counties, districts, and regional areas were used to obtain these estimates, the regional estimate then being applied to the subarea. The survival rate was then computed as:

---

[1] These calculations were necessary to the projection program. However, actual numbers of live births over the years 1967 to 1971 were used as input to the population base.

$$s_i = \frac{L_i}{L_i - 1}$$

where s_i is the survival rate for age i (the probability of a person of age i - 1 surviving for one year), and L_i is the stationary population. The survival rate for age 0 is $s_0 = L_0/100000$.

A small adjustment was then made to the survival rates for ages 85 and above. This adjustment was necessary because the 85 to 89 category is in reality 85 plus, and all people above the age of 89 should be placed in the 89 plus category, rather than being distributed over the ages 85 through 89.

1986 survival rates were then estimated for five-year age groups by economic region. The 1971 survival rates were computed by five-year age groups (the same method as described above, without using Sprague multipliers or the adjustment). An annual multiplicative adjustment was then computed. This is the same procedure as was used for adjusting fertility where the survival rate for age i in year j is:

$$s_{ij} = s_{i1}^{\frac{16 - i}{15}} \cdot s_{i16}^{\frac{i - 1}{15}}$$

As noted in connection with fertility, the result is a smooth exponential curve through the geometric mean.

Migration:

Smoothed age- and sex-specific 1966-1971 migration rate estimates for each county, district, and regional area were computed by methods described in C.

Five-year age grouping from 5 to 9 through 70 to 74 was used, after applying a small correction factor, $m_c = 5 \cdot (m + 1)^{1/5} - 5$. A value of 0.1 becomes 0.0962, one of -0.1 becomes -0.10426. This adjustment is necessary because of the additive nature of the Sprague multipliers which results in the sum of the single-year estimates equaling the initial five-year estimate. The adjustment is directly analogous to using the geometric rather than the arithmetic mean, an approach consistently followed in these projections.

Sprague multipliers were used to obtain single-year age group migration rate estimates for individual years. Net migration above age 74 was assumed to be zero. The rate for ages 1 through 4 was assumed to be the same rate as for 5-year-olds. The rate for the under 1 category was estimated as $(1 + m_6)^{1/2} - 1$, since this group averaged only about a half year of "exposure to migration," i.e., living.

E.
Description and Listing of Projection Program

The final program used to obtain the projection is relatively simple, many of the more complex data manipulation tasks having been done with separate editing routines. It was tested and run on an IBM 370, although conversion to any other system with a full FORTRAN compiler should be quite simple.

The program consists of a mainline and ten subroutines. The major functions of each of these is given below:

PRØJECT

MAIN - specifies parameters, major loops, and calling sequences
PRØV - total projections over counties, districts, and regional areas; accumulates regional and provincial totals
INPUT - reads and adjusts input
PARM - prints basic data
FADJ - applies Gompertz to age-specific birth rates
MØVE - moves an array
SPR - applies Sprague multipliers to a population distribution
SPRX - matrix multiplication routines used by SPR
PRØJ - does actual projection
PAGE - prints page headings
PR - prints projection

The calling structure is straightforward. INPUT, PARM, PRØJ, PR, PRØV, PAGE, and MØVE are called directly by the main routine. INPUT calls FADJ and SPR, SPR calls SPRX, and PARM and PR call PAGE.

Three files are used by the program. Logical unit 8 is a binary input tape file. Logical unit 6 is a standard print file. Logical unit 9 is an extra print file used by subroutine PR to output data totalled over sex. Since the maximum line width is 72 characters, it may be printed on 8½ x 11 inch paper.

It is anticipated that the vast majority of alterations would affect only the subroutine INPUT and the tape file read by it. The following descriptions should simplify the task.

Input Tape File 8. This tape is a 1600 b.p.i. IBM standard labelled tape, serial N7285, containing VS format records. Each record contains 547 words, or 2188 bytes.

The following arrays are contained in the file. The lengths are given in words. All arrays, except the first, are single precision floating point.

Array	Length	Description
NAME	10	Title of county, district, or regional area
VLL	36	Stationary population
P	36	Population
B	70	Crude births
XM	28	Migration rates
PP	180	Population
F86	7	Estimated fertility rates, 1986
SDELTA	180	Rate of decline of survival rate

VLL and PP contain data by five-year age groupings from 0 to 4 through 85+ by sex; the subscripting is, in effect, VLL(18,2) and P (18,2). PP and SDELTA are comparable except that the age interval is a single year from 0 through 89. They are, in effect, PP (90,2) and SDELTA (90,2). Note that P is a summation of PP. In the program containing migration input, XM is similar to VLL and P, but contains data for age ranges 5 to 9 through 70 to 74. F86 covers the age ranges 15 to 19 through 45 to 49 for females only. Finally, B contains the data by age of mother for the same seven age ranges as F86, by sex, and by year from 1967 through 1971. Its mode of storage is B(7,2,5).

Subroutine INPUT. Subroutine INPUT reads the file described above and, after various manipulations, returns the following new arrays. NAME, PP, and SDELTA are also passed back to the mainline unchanged, except for a minor correction of the titles.

Array	Length	Description
SR	180	Survival rate
RM	180	Rate of migration
FR	35	Fertility rate
FDELTA	35	Rate of change of fertility rate
SEX	2	Proportion of births which are male and female

The storage mode of SR and RM is the same as that of PP and SDELTA. FR and FDELTA are vectors referencing female by single year of age from 15 through 49.

The subroutine falls into several distinct sections. First, the data for the county are read and a portion of the title is set to blanks. Next, Sprague multipliers are used to distribute the stationary population (VL) in one-year age groups, and the survival rates (SR) are calculated. The 1971 age-specific fertility rates (FF, for five-year age group) are then computed, and both these rates and the comparable 1986 estimated rates (F86) are adjusted to five-year time period rates. The Gompertz curve is then applied to both, yielding the one-year, single year of age, fertility rates for 1971 (FR) and 1986 (temporarily placed in FDELTA). The actual annual fertility rate (FDELTA) is then calculated, ending in FORTRAN statement 110.

The next group of eight statements is used to compute proportions of male and female births (SEX) over the interval 1967-1971.

For the program containing a migration component, the remaining statements transform the input migration rates (XM) into the single year of age, one year of time rates (RM) used for the projection.

Projection Program Including Migration Component

```
C          PROJECT --  APRIL 1975  --  POSTL.
C
      REAL PP(1080),SR(180),RM(180),FR(35),SEX(2),NAME(10),
     1     REG(1080,3),TOT(1080,3),ONT(10),REGT(10),REGN(9),
     2     FDELTA(35),SDELTA(180)
      INTEGER NPR(9)
C
      DATA TOT /3240*0.0/,
     1     ONT /'ONTA','RIO ','TOTA','L   ',6*'    '/,
     2     REGT /'SCHO','OL B','OARD',' REG','ION ',5*'    '/,
     3     REGN /'1','2','3','4','5','6','7','8','9'/,
     4     NPR /3,3,5,6,7,4,9,8,8/
      DATA IYR,NLL,NREG / 1971, 3, 9 /
C
      DO 300 IREG=1,NREG
C
      NPG=NPR(IREG)
      REGT(6)=REGN(IREG)
      DO 50 I=1,1080
      DO 50 J=1,NLL
   50 REG(I,J)=0.0
C
      DO 200 IPG=1,NPG
C
      CALL INPUT (PP,SR,RM,FR,SEX,NAME,FDELTA,SDELTA)
      CALL PARM (PP,SR,RM,SDELTA, PP(91),SR(91),RM(91),SDELTA(91),
     1           FR,FDELTA,NAME,SEX)
C
      JYR=IYR
      DO 200 ILL=1,NLL
C
      J=1
      DO 100 I=1,5
      CALL PROJ (PP(J),PP(J+180),SR,RM,FR,SEX,FDELTA,SDELTA)
  100 J=J+180
C
      JYR=JYR+5
      CALL PR (PP,JYR,NAME)
      CALL PROV (REG(1,ILL),PP)
      IF (ILL.LT.NLL) CALL MOVE (PP(901),PP,180)
  200 CONTINUE
      DO 240 I=1,NLL
      CALL PR (REG(1,I),IYR+5*I,REGT)
  240 CALL PROV (TOT(1,I),REG(1,I))
  300 CONTINUE
C
      DO 400 I=1,NLL
  400 CALL PR (TOT(1,I),IYR+5*I,ONT)
C
      CALL PAGE
      WRITE (6,2000)
      STOP
C
 2000 FORMAT (//////////'*      **********  END OF JOB **********')
C
      END
      SUBROUTINE PROV (T,P)
      REAL T(1),P(1)
      DO 10 I=1,1080
   10 T(I)=T(I)+P(I)
      RETURN
      END



      SUBROUTINE INPUT (PP,SR,RM,FR,SEX,NAME,FDELTA,SDELTA)
C
      REAL PP(180),SR(1),RM(1),FR(1),SEX(1),NAME(10),FDELTA(1)
      REAL P(36),VLL(36),XM(28),FF(7),B(7,2,5),F86(7),SDELTA(180)
      DATA IBLANK /'    '/
C
      READ (8) NAME,VLL,P,B,XM,PP,F86,SDELTA
C
      NAME( 8)=IBLANK
      NAME( 9)=IBLANK
      NAME(10)=IBLANK
C
      CALL SPR (VLL,SR,17)
      CALL SPR (VLL(19),SR(91),17)
C
      DO 60 I=6,89
      SR(91-I)=SR(91-I)/SR(90-I)
   60 SR(181-I)=SR(181-I)/SR(180-I)
C
      SR(1)=0.00001*SR(1)
      SR(91)=0.00001*SR(91)
      DO 80 I=86,89
      SR(I)= SR(85)
 80   SR(I+90)= SR(175)
      SR(90)= VLL(18)/(VLL(17)*SR(85)**4)
      SR(180)= VLL(36)/(VLL(35)*SR(175)**4)
C
      DO 100 I=1,7
      F86(I)=5.0*F86(I)
  100 FF(I)=5.0*(B(I,1,5)+B(I,2,5))/P(I+21)
      CALL FADJ (F86,FDELTA)
      CALL FADJ (FF,FR)
C
      DO 110 I=1,30
  110 FDELTA(I)=(FDELTA(I)/FR(I))**0.06666667
C
      SEX(1)=0.0
      SEX(2)=0.0
      DO 120 I=1,7
      DO 120 J=1,5
      SEX(1)=SEX(1)+B(I,1,J)
  120 SEX(2)=SEX(2)+B(I,2,J)
      SEX(1)=SEX(1)/(SEX(1)+SEX(2))
      SEX(2)=1.0-SEX(1)
C
      DO 140 I=1,28
  140 XM(I)=5.0*((XM(I)+1.0)**0.2)-5.0
C
      CALL SPR (XM,RM(6),14)
      CALL SPR (XM(15),RM(96),14)
C
      DO 150 I=76,90
      RM(I)=0.0
  150 RM(I+90)=0.0
C
      DO 160 I=2,5
      RM(I)= RM(6)
  160 RM(I+90)= RM(96)
      RM(1)= SQRT((RM(6)+1.))-1.
      RM(91)= SQRT((RM(96)+1.))-1.
C
      RETURN
      END
      SUBROUTINE PARM (A,B,C,D,E,F,G,H,FR,FD,NAME,SEX)
C
      REAL A(1),B(1),C(1),D(1),E(1),F(1),G(1),H(1),FR(1),FD(1),NAME(10)
C
      J=0
      K=0
C
      DO 100 IP=1,2
      CALL PAGE
      WRITE (6,1000) NAME,SEX
C
      DO 100 I=1,45
      J=J+1
      FF=0.0
      IF (J.GT.15.AND.J.LT.51) FF=FR(J-15)
      DD=0.0
      IF (J.GT.15.AND.J.LT.51) DD=FD(J-15)
      WRITE (6,2000) K,A(J),B(J),C(J),D(J),E(J),F(J),G(J),H(J),FF,DD
  100 K=J
C
      RETURN
C
 1000 FORMAT (' POPULATION GROUP..... ',10A4/
     1        ' PROPORTION MALES..... ',F12.5/
     2        '0AGE    MALE POP      MALE SR      MALE MR      M SR CH',
     3        '  FEMALE POP   FEMALE SR   FEMALE MR      F SR CH',
     4        '              FR          FR CH'/)
 2000 FORMAT (I4,2(F12.0,3F12.5),2F12.3)
C
      END
```

```
      SUBROUTINE FADJ (FF,FR)
C
      REAL FF(7),FR(35)
C
      REAL B1(5),B5(7),K
C
      Y1=FF(1)+FF(2)+FF(3)
      Y2=ALOG(Y1+FF(4)+FF(5))
      Y1=ALOG(Y1)
      Y0=ALOG(FF(1))
C
      B10=(Y2-Y1)/(Y1-Y0)
      G=(Y1-Y0)/(B10-1.0)
      K=Y0-G
      B=B10**0.1
C
      B1(1)=G
      B1(2)=B*G
      B1(3)=B1(2)*B
      B1(4)=B1(3)*B
      B1(5)=B1(4)*B
C
      B5(2)=1.0
      B5(3)=SQRT(B10)
      B5(4)=B10
      B5(1)=1.0/B5(3)
      B5(5)=B10*B5(3)
      B5(6)=B10*B10
      B5(7)=B5(6)*B5(3)
C
      SUM=0.0
      M=0
      DO 60 I=1,7
      DO 60 J=1,5
      M=M+1
      X=EXP(K+B1(J)*B5(I))
      FR(M)=X-SUM
      SUM=X
   60 CONTINUE
C
      RETURN
      END
```

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```
      SUBROUTINE MOVE (B,A,N)
      REAL A(N),B(N)
      DO 20 I=1,N
   20 A(I)=B(I)
      RETURN
      END
```

```
      SUBROUTINE SPR (PA,PE,NAG)
C
      REAL PA(1),PE(1)
      REAL A(20),B(20),C(25),D(20),E(20)
C
      DATA A /  .3616,-.2768, .1488,-.0336,
     1          .2640,-.0960, .0400,-.0080,
     2          .1840, .0400,-.0320, .0080,
     3          .1200, .1360,-.0720, .0160,
     4          .0704, .1968,-.0848, .0176/
C
      DATA B /  .0336, .2272,-.0752, .0144,
     1          .0080, .2320,-.0480, .0080,
     2         -.0080, .2160,-.0080, .0000,
     3         -.0160, .1840, .0400,-.0080,
     4         -.0176, .1408, .0912,-.0144/
C
      DATA C / -.0128, .0848, .1504,-.0240, .0016,
     1         -.0016, .0144, .2224,-.0416, .0064,
     2          .0064,-.0336, .2544,-.0336, .0064,
     3          .0064,-.0416, .2224, .0144,-.0016,
     4          .0016,-.0240, .1504, .0848,-.0128/
C
      DATA D / -.0144, .0912, .1408,-.0176,
     1         -.0080, .0400, .1840,-.0160,
     2          .0000,-.0080, .2160,-.0080,
     3          .0080,-.0480, .2320, .0080,
     4          .0144,-.0752, .2272, .0336/
C
      DATA E /  .0176,-.0848, .1968, .0704,
     1          .0160,-.0720, .1360, .1200,
     2          .0080,-.0320, .0400, .1840,
     3         -.0080, .0400,-.0960, .2640,
     4         -.0336, .1488,-.2768, .3616/
C
C        ESTIMATE FIRST 2 AGE GROUPS
C
      CALL SPRX (PA,PE,A,4)
      CALL SPRX (PA,PE(6),B,4)
C
C        NOW AGE GROUPS 3 THROUGH NAG-2
C
      J=NAG-4
      K=6
C
      DO 40 I=1,J
      K=K+5
      CALL SPRX (PA(I),PE(K),C,5)
   40 CONTINUE
C
C        NOW FINAL 2 AGE GROUPS
C
      J=J+1
      CALL SPRX (PA(J),PE(K+5),D,4)
      CALL SPRX (PA(J),PE(K+10),E,4)
C
      RETURN
      END
      SUBROUTINE SPRX (PA,PE,A,N)
C
C        DO ACTUAL SPRAGUE MULTIPLICATION FOR 1 5-YEAR AGE GROUP
C        FORMULA IS PE = A * PA, WHERE PE IS 5 BY 1, A IS 5 BY N,
C        PA N BY 1.  PA AND PE ARE SECTIONS OF THE PA & PE
C        VECTORS FROM THE CALLING SUBROUTINE (SPR) -- THEY ARE THE
C        ESTIMATED AGE DISTRIBUTIONS BY 5 (PA) & 1 (PE) YEAR INTERVALS
C
      REAL PA(1),PE(1),A(1)
C
      I=0
C
      DO 40 J=1,5
      PE(J)=0.0
C
      DO 40 K=1,N
C
      I=I+1
      PE(J)=PE(J)+A(I)*PA(K)
   40 CONTINUE
C
      RETURN
C
      END
```

```
      SUBROUTINE PROJ (PA,PB,SR,RM,FR,SEX,FDELTA,SDELTA)
C
      REAL PA(1),PB(1),SR(1),RM(1),FR(1),SEX(1),FDELTA(1),SDELTA(1)
C
      DO 20 I=1,180
   20 SR(I)=SR(I)+SDELTA(I)-SR(I)*SDELTA(I)
C
      DO 30 I=1,30
   30 FR(I)=FR(I)*FDELTA(I)
C
      DO 40 I=2,90
      PB(I)=(SR(I)+RM(I))*PA(I-1)
   40 PB(I+90)=(SR(I+90)+RM(I+90))*PA(I+89)
C
      TB=0.0
      DO 60 I=1,30
   60 TB=TB+FR(I)*PB(I+105)
C
      PB(1)=SEX(1)*TB*SR(1)*(1+RM(1))
      PB(91)=SEX(2)*TB*SR(91)*(1.0+RM(91))
C
      RETURN
      END
```

```
      SUBROUTINE PAGE
      DATA I/0/
      I=I+1
      WRITE (6,100) I
  100 FORMAT ('1',45X,'ONTARIO POPULATION PROJECTION',45X,'PAGE',I5/)
      RETURN
      END
      SUBROUTINE PH (PP,JYR,NAME)
C
      REAL PP(1), TOT(18),AIO(14)
      REAL CIO(7)
      INTEGER IYR(6),NAME(10)
      EQUIVALENCE (XAGE,IAGE)
      DATA IPAGE /0/
C
      KNT=0
      IAGE=-1
      DO 50 I=1,6
      IYR(I)=JYR+I-6
      TOT(I)=0.0
   50 TOT(I+6)=0.0
C
      DO 100 JJJ=1,2
      CALL PAGE
      WRITE (6,1500) NAME
      WRITE (6,2000) IYR,IYR
C
      IPAGE=IPAGE+1
      WRITE (9,1700) NAME,IPAGE
      WRITE (9,2200) IYR
C
      DO 100 I=1,45
      KNT=KNT+1
      IAGE=IAGE+1
      AIO(1)=XAGE
      AIO(8)=XAGE
      CIO(1)=XAGE
      KK=KNT
C
      DO 80 J=2,7
      AIO(J)=PP(KK)
      AIO(J+7)=PP(KK+90)
      CIO(J)=AIO(J)+AIO(J+7)
   80 KK=KK+180
C
      DO 90 J=1,6
      TOT(J)=TOT(J)+AIO(J+1)
   90 TOT(J+6)=TOT(J+6)+AIO(J+8)
C
      WRITE (9,3200) CIO
  100 WRITE (6,3000) AIO
C
      DO 120 I=1,6
  120 TOT(I+12)=TOT(I)+TOT(I+6)
C
      WRITE (9,4200) (TOT(I),I=13,18)
      WRITE (6,4000) TOT
C
      RETURN

C
 1500 FORMAT (' POPULATION GROUP..... ',20A4)
 2000 FORMAT ('0',14('- '),'M A L E',    14(' -'),' | ',
     1            13('- '),'F E M A L E',13(' -')/
     2         ' AGE',I8,5I10,'    | AGE',I8,5I10/
     3         65X,'|')
 3000 FORMAT (I4,6F10.0,' |',I4,6F10.0)
 4000 FORMAT (65X,'|'/
     1         ' TOT',6F10.0,' | TOT',6F10.0/
     2         ' GTOT',F9.0,5F10.0)
C
 1700 FORMAT ('1POPULATION.... ',10A4,8X,'PAGE',I4/)
 2200 FORMAT ('0',32('- ')/' AGE',I8,5I10/)
 3200 FORMAT (I4,6F10.0)
 4200 FORMAT ('0TOT',6F10.0)
C
      END
```

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